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MR. HARE'S PAPER: A REJOINDER

By E. W. F. TOMLIN

ANYONE who had the good fortune to receive his philosophical education at Oxford, and who has since remained in contact with Oxford philosophy, will recognize in Mr. Hare's paper¹ a familiar statement of principle. It is a statement which, as it stands, can hardly be challenged. The method of disciplined discussion, of running dialogue, of co-operative cross-examination, forms an integral part of Oxford philosophical conduct. Such a method cannot easily be transplanted. To introduce it elsewhere would mean to introduce such traditional institutions as the tutorial system, and perhaps even the college system. Mr. Hare is of course writing with a critical eye on German academic methods; he makes no disguise of preferring those of his own university. What I think he does not sufficiently bring out in his paper is that German practice, or French practice for that matter, is the result of wholly different academic and national traditions. Nearest in spirit to Oxford is Cambridge; but the Cambridge department of philosophy — a sub-Faculty in that of Moral Science — is not merely much smaller than that at Oxford but dissimilar in its approach. I do not wish to exaggerate the difference, still less to define it; but anyone who has worked with the two Schools knows that such a difference exists.

Starting as I do with a prejudice in favour of Mr. Hare's principles, or at least his enunciation of them, I run the risk in what follows of appearing to contradict myself. What I shall endeavour to do, in this rejoinder, is to draw attention to certain dangers to which the Oxford approach, so brilliantly defended by Mr. Hare, seems to me to be exposed. Perhaps I shall be dealing not with the principles but with their possible abuse. And principles can sometimes be abused by too strict application. The reader of Mr. Hare's paper will observe that most of the usual objections to analytical or linguistic philosophy are raised and effectively countered. To cite two examples. We are assured that Oxford philosophers, taken as a body, are not hostile to metaphysics. On the contrary, they spend most of their time doing metaphysics, only they call it logic. Secondly, linguistic philosophy, contrary to the prevailing impression, is not indifferent to practice: that is to say, it is not a game played *within* language, having no reference to 'reality'. These are important and much-needed clarifications. I still retain an uneasy feeling, however,

¹ See *Ratio*, vol. II, No. 2.

that Mr. Hare has not met those deeper objections to analytical philosophy as practised by his colleagues, which have for some time been growing in volume and intensity. Indeed, his paper provokes in one reader at least a series of assents followed by an immediate qualification. 'Yes, but ...' is the reaction to point after point. And I think many of those who were taught philosophy at Oxford, but who came under influence other than the linguistic, would agree.

Let us look a little closer at the two examples already given. First, metaphysics. We may agree that some Oxford linguistic philosophers, Professor Ayer for example, have been writing metaphysics for years. 'We *do* metaphysics at Oxford,' writes Mr. Hare, 'but we *call* it something else — usually "logic"; but it includes many questions which would be called in other places metaphysical. There are for example many questions about time and space and their nature; about substance; about the nature of universals; and so on.' Yes, but ... Is this account of 'doing metaphysics' what people usually mean when they refer to the traditional study of metaphysics and Oxford's apparent neglect of it? I do not think so. Before enlarging on this point I should like to refer to the other. Language: 'It is frequently said of the so-called "linguistic philosophers" that, though concentrating attention on words and their meanings, they have abandoned the study of "the world" or of "reality" ... But philosophers are concerned with words as having meanings or uses, and these at any moment cannot be studied without seeing how words are used, in concrete situations, to say various things; and of course this involves (as is evident from our practice) a careful study of the situations, in order to find out what is being said'. Yes, but ... Is this a convincing answer to the contention, originally put forward by Bertrand Russell and now made a public issue by Ernest Gellner's recent book² that the conception of philosophy as a study of linguistic confusions is not what is traditionally meant by philosophy as the study of the nature of existence? Again, I do not think so.

Metaphysical inquiry is made up of a number of subsidiary inquiries. Nevertheless, there is such a thing as a metaphysical view of the world, a system. It is the elaboration of a system, a *Weltanschauung*, which Mr. Hare and most of his Oxford colleagues seem to regard with suspicion. He virtually says so. A German professor comes to Oxford, we are told. He expounds his philosophical views. Having done so, the British philosopher 'will then say that he cannot understand what has been said and will ask for an elucidation

² *Words and Things*, Gollancz, 1959.

tion'. Whether Mr. Hare is giving just one example, or whether he automatically assumes that no one at Oxford will understand what a German philosopher is talking about, is not clear. If the latter, his regret that meetings between German and Oxford philosophers are 'unfortunately rare' would seem to be misplaced. Now the elucidation which the Oxford philosopher seeks, it appears, is not a further exposition of views, but an account of how one sentence in the German professor's exposition, or even how one word in that sentence, is 'being used'. Judging from the quotation from Wittgenstein which follows, the aim of such a question is to demonstrate that the particular sentence or word, being metaphysical, may have no meaning. I used the word 'may', because Mr. Hare does not surrender completely to the view of Wittgenstein, as here expounded, that no metaphysical terms can have meaning. He is merely quoting the early Wittgenstein in order to illustrate the source from which the Oxford attitude is derived.³

Despite the qualification, one cannot help feeling that this is all a trifle unsatisfactory. To generalize from a hypothetical case is dangerous; but as Mr. Hare gives this example as typical, we may presumably rest our argument upon it. Such a method of approach as he outlines must imply a view of philosophy or metaphysics which, to employ the terminology of P. F. Strawson in his book *Individuals*,⁴ is 'descriptive', as opposed to 'revisionary'. That is to say, the function of metaphysics is not to elaborate a view of the world to which our thinking or experience should conform, but to lay bare the actual structure of our thought. Thus the Oxford philosopher will, as it were, hammer the wheels of the German's train in order to see if they ring true. He will not ask where the train is going: that is not his business. Dropping the metaphor, it appears to be assumed that if a sentence or a word here and there can be challenged, the whole structure or argument is rendered invalid. If the word or sentence is a key one, no doubt this is true; but a word or sentence acquires meaning or a particular nuance of meaning from the whole context in which it is employed. Moreover, we must constantly be arguing from the part to the whole and back again, if we are honestly to appraise a systematic exposition. Behind Mr. Hare's contention there would seem to lurk the assumption that philosophy — or the 'whole new way of doing philosophy' of which he speaks — is not the elaboration of systems but their demolition (he speaks of 'monstrous philosophical edifices'), not revisionary but descriptive,

³ I think Mr. Hare is a little hard on German philosophers when he says that they are usually unable to show how they get their metaphysical systems started. Hegel, the chief of them, was successful enough. The problem was where to stop.

⁴ Methuen, 1959.

or rather critical. Many years ago, in a review of A. J. Ayer's *Language, Truth and Logic*, I called this form of philosophy Logical Negativism, and I still think the title appropriate.

If I am emboldened to make this assertion, it is because it is supported not merely by the general tone of Mr. Hare's remarks but by the testimony of a number of his colleagues, and this in a context which I think he would approve. He frequently refers to his Oxford colleagues, describing them in one place as 'the ablest collection of philosophers in the country', so he will not object to my citing their views as expounded in two well-known and extremely interesting books. *The Revolution in Philosophy*⁵ and *The Nature of Metaphysics*,⁶ both collections of talks delivered originally on the B.B.C., are symposia almost entirely of Oxford views. Here the implied attack on systems in Mr. Hare's paper is given open support, and the claim is likewise made that a new way of doing philosophy has been found. Thus Iris Murdoch observes that 'it is the merit of modern philosophers to be more conscious than their predecessors of what the philosopher's activity is'; Stuart Hampshire roundly declares that the old idea of system-building has been killed 'stone-dead' by the 'devastating discoveries of modern linguistic philosophers'; G. J. Warnock remarks of moral theory that 'we shall not be able to go back to the kind of ethical theory which was supposed to derive from some total explanation of the universe'; and Gilbert Ryle speaks of 'the sedulous refusal of British philosophers to talk about the cosmos'. One may remark of all these declarations their somewhat lofty dogmatic character. Except in the paper by Stuart Hampshire, there is little or not attempt to justify such claims. Stuart Hampshire's own justification is at least forthright, though curiously unsatisfactory. He admits that the *impulse* towards metaphysical thinking is a natural one. Being aware of the limitations of our 'human situation', we endeavour to transcend them. Thus we are 'tempted hopelessly into metaphysical speculation'. Like Sartrean man, metaphysics is *une passion inutile*. The point to which Stuart Hampshire does not address himself is how we should be aware of the limitations of our experience if we did not somehow transcend them. Perhaps these are not his considered views. With regard to the superiority of modern philosophy over any other, and with reference to the limits of speculation, I observe a somewhat different tone in his latest work, *Thought and Action*.⁷

Such sudden shifts of position, not always so obvious as the above, are characteristic of much modern linguistic philosophy. To take an

⁵ Macmillan, 1956.

⁶ Macmillan, 1957.

⁷ Chatto & Windus, 1959, ch. iv, p. 243, and ch. v, p. 271.

example: the real basis of the destructive assertions quoted in the preceding paragraph is the famous Principle of Verifiability as originally propounded by the Logical Positivists. Now Logical Positivism in its primal form is no longer in fashion. (One may prophesy the passing from favour of Linguistic Philosophy itself, following Russell's attack and the impact of Gellner's book.) Nevertheless, subscription to the Principle of Verifiability in not too unrecognizable a form is a condition of holding the kind of views which Mr. Hare holds. So where do we stand? Mr. Hare speaks approvingly of the Vienna Circle, while claiming that their tenets were far too narrow. What is difficult to discover is the extent to which he and his colleagues have stretched these tenets so as no longer to remain within their constraint. Either the Principle forbids metaphysical statements or it does not; but if it does not, it is no longer the foundation of the radical empiricism which would reduce philosophy to the kind of 'nibbling' technique approved by Mr. Hare. He refers to an essay by Ryle in *British Philosophy in the Mid-Century*⁸ entitled 'The Theory of Meaning', for an approach 'more comprehensive than that of the Vienna Circle'. Indeed, it is more comprehensive; and it is so by reason of having broken out of the 'circle' altogether. In his final paragraph, Ryle makes a strong case against the kind of piecemeal attitude to philosophy which Mr. Hare seems to be advocating. He further attributes to 'Transatlantic journals' the notion that British philosophy is dominated by linguistic analysts. Yet he has himself contributed to a volume⁹ in which linguistic analysis is held to have 'devastatingly' destroyed traditional philosophy; and Mr. Hare, who approves of Ryle's paper, has made it clear that linguistic philosophy is what he and his colleagues mean by the 'whole new way of doing philosophy'.

Among the most interesting passages in Mr. Hare's paper is that in which he refers to the attitude of Oxford philosophers to setting down their thoughts in writing. He points out that a teacher of philosophy at Oxford, unlike some teachers in other countries, is not required to publish; he is even slightly discouraged from doing so. And if he does publish, he is required to be brief. On several occasions Mr. Hare refers to 'huge volumes' or 'long obscure books' which nobody will read; here he seems to be tilting at German productions. That the Oxford (and British) practice has much to recommend it seems obvious; to make regular publication a condition of retaining one's academic position is to most of us abhorrent. But when Mr. Hare extends his self-denying ordinance to reading, I feel he treads

⁸ Allen & Unwin, 1957.

⁹ *The Nature of Metaphysics*, Final Discussion, pp. 142-64.

less sure ground. 'We do not think it is a *duty* to write books; still less do we think it a duty to read more than a few of the books that others write — for we know that, given our heavy load of teaching, to read more than the essential books would take us away from more important things.' Granted that nobody can read as much as he wants to, even in his own subject; but a teacher of philosophy must surely read not the minimum but the maximum compatible with his other pressing duties. Mr. Hare speaks of 'essential' books: who is to determine which they are? And since the only thing more important in his life must presumably be instruction, the teacher of philosophy must give the widest possible interpretation to 'essential'. Otherwise a very large number of books on philosophy will remain unread by precisely those whose business it is to peruse them. Indeed, we have a suspicion that the 'essential' books will turn out in practice to be those which Oxford philosophers agree to regard as such; and this will mean the books most faithfully reflecting the current views of linguistic philosophy. The suspicion is to some extent confirmed by Mr. Hare's remark that 'we therefore find it hard to discuss philosophy with, *or to read the books of* [my italics], people who do not seem to be *worried* about the problem of convincing the sceptic that their philosophical propositions mean something', and that 'we at Oxford, unlike most German philosophers, find it easy to discuss philosophical questions with those who have remained more faithful to the traditions of Vienna'.

I should like to dwell on this point. While retaining the highest respect for the Oxford method of teaching philosophy, I feel I am echoing the experience of many others when I say that it can lead, if too literally applied, to a certain provincialism. Here I am not referring to Mr. Hare's own distinguished work, still less to his practice: I am referring to possible abuses to which the method can give rise in less responsible hands. That teachers of so complicated and comprehensive a discipline as philosophy should confine themselves to one type of reading, and enjoin upon their pupils the same narrowness of outlook, seems to me to be regrettable and even dangerous. There is in some philosophical discussions of this nature a parochialism — Mr. So-and-So's paper in *Mind*, Professor So-and-So's recent talk, etc. — which is not merely boring but paralysing. What is more, it can lead to the very misunderstandings which linguistic philosophy is dedicated to clearing up. In certain philosophical publications in Britain there is evidence of surprising lack of knowledge of what is going on on the Continent, and a total ignorance of what lies beyond. Hence the various traditions, instead of becoming closer, are moving farther apart. Worse still, this constricting attitude

can, by a paradox, be exported. I have elsewhere quoted an observation by an Indian philosopher which only too clearly betrays its origin: 'The purpose of philosophy has been and must always be the clarification of "confusions", as against the discovery of ultimate truths about reality.'¹⁰ We know where he learnt *that*.

I shall conclude by reverting once more to the question of philosophy and 'life'. Mr. Hare makes a good, almost an overwhelming, case for the proper initiation of the student into the discipline of philosophy: what he calls the 'way in'. He is obviously right to insist that the student must first be taught how to think. But what then? Mr. Hare is against making philosophy into a *mystique*. I do not know quite what he intends to convey by this, but I do know the direction in which such a remark may lead. It may lead to the abandonment not merely of high seriousness, in Matthew Arnold's sense, but of seriousness altogether. It may lead to the dead-end at which Wittgenstein arrived in his early period, and which is displayed in all its aridity in the *Blue Book*. 'Philosophers constantly see the method of science before their eyes, and are irresistibly tempted to ask and answer questions in the way science does. This tendency is the real source of metaphysics, and leads the philosopher into complete darkness. I want to say here that it can never be our job to reduce anything to anything or to explain anything. Philosophy really is 'purely descriptive'.¹¹

'It can never be our job to explain anything': Wittgenstein did not remain in this intellectual void. At heart he was a traditionalist, though he has yet to be rescued from the clutches of those who would make him the arch-enemy of metaphysics. In a letter quoted in Norman Malcolm's admirable Memoir,¹² Wittgenstein wrote: 'What is the use of studying philosophy at all if all that it does for you is to enable you to talk with some plausibility about some abstruse questions of logic, etc., and if it does not improve your thinking about important questions of everyday life?'

I believe Mr. Hare would subscribe to that remark, and that his book *The Language of Morals* is meant to encourage a proper reflection on important matters of conduct. I know also that when he denounces systems, and the 'long books' supposed to embody them, he is pointing to the dangers to which irresponsible and inexact speculation may give rise. Yet unless the trained philosopher — and he most of all — occasionally issues out of his narrow territory and reflects upon the nature and meaning of existence, he will leave the

¹⁰ Daya Krishna, *The Nature of Philosophy*, Calcutta, 1955.

¹¹ *The Blue and the Brown Books*, Basil Blackwell, Oxford, 1958, p. 18.

¹² Ludwig Wittgenstein, Oxford University Press, 1958, p. 39.

field open to the charlatan and the crank. It is a melancholy reflection that the dominance of linguistic philosophy for so many years has not lessened but rather increased the spread of that 'propaganda of irrationalism' which R. G. Collingwood, much to the scandal of his fellow-thinkers, held to be promoted by nothing so much as the methods of linguistic philosophy itself.

PARTICIPATION AND CONTEMPLATION IN ANCIENT GREEK AND IN MODERN THOUGHT

BY W. J. VERDENIUS

THE question has often been raised, whether it is still worth while, in modern times, to concern ourselves with classical antiquity. The doubts expressed do not concern a scholarly study of antiquity as such but a study that may have a value today from a cultural point of view. The educational value of antiquity has become debatable. Man, so it is said, must himself create his norms and take responsibility for them, and in this the past — even the 'classical' past — can never serve him as a model or guiding principle. The objection that norms are never created out of nothing but always produced in the context of a historical tradition is, as a rule, conceded only partially in the reply that it is sufficient for us to take account of the final stage of that tradition which is still alive in the present. We may assume, so it is said, that thanks to the cultural selection process of twenty centuries the permanent values of ancient culture have been firmly embedded in Western tradition. It may be interesting for scholars to investigate the roots from which present-day culture has grown, but the further development of this growth will not be promoted by turning to the past. In so far as we want to be productive human beings we would do better to take our point of departure in the present and to fix our attention on the future.

The supporters of classical education, however, stand firm in their defence of the point of view that our understanding of the present situation remains incomplete and inadequate so long as we have no clear idea of that very oldest root of our civilization. This view is, for the most part, put forward with the claim that it is a self-evident truth which needs no further proof. Hence it is not surprising that the opponents of classical education regard this kind of defence as historicism and reject it without further ado. But their reaction is precipitate and not altogether justified. The advocates of classical education should be required, in support of their conviction, to show by means of examples that our understanding of the present is significantly deepened by reflection upon a past so far removed. In my opinion it can, in fact, be shown that it is worth while, in the case of a great many problems, to see first what the Greeks thought about these problems — not, indeed, because they have given us definitive answers, but rather because they posed the problems so precisely. This does not mean that they probed and described these problems in all their aspects. On the contrary, Greek thought often

tends towards simplification. But when it is simple, then it is simple in the good sense of reducing the problem to its simplest dimensions. Hence the word 'precise' means, in this context, fundamental and directed to the heart of the matter. It is this precision that gives Greek thought its inexhaustible actuality: it has retained its power to stimulate even though its results are, for the most part, obsolete. Hence Greek thought remains invariably a fruitful point of departure for the critical analysis of modern thought. The following considerations are intended to make this clear in a particular case.

The Greek philosophers concerned themselves at great length with the problem of the whole of the world and the place of man in this whole. Along with the neutral term 'the All' (*to pan*), they used two expressions to point out determinate aspects of the whole: namely, *kosmos* and *phusis*. *Kosmos* meant, originally, 'order', as well as 'the ordered', or a 'beautifully ordered whole'.¹ In so far as they referred to the world as *kosmos*, they viewed it, therefore, from a predominantly aesthetic point of view. They centred their attention upon the beautiful order, the harmonious connection of things. *Phusis* meant, originally, 'growth', or 'things that have grown', or 'a living whole'.² Here they let themselves be led by a biological point of view, and the accent was on the organic connection of things.

Although both terms were already used in the most ancient times, e.g. by Heraclitus, the original world-view of the Greeks was determined by the viewpoint of *phusis*. They looked upon the world as a great organism, and upon the relation of man to the world as an immediate vital connection. The ancient sages, says Plato,³ teach that heaven and earth, gods and men, are united in a community of life (*koinonia*).

At first they sought the foundation of this vital community in a single substance. Thales chose water, the most elementary condition of life;⁴ Anaximenes, air, which, as the breath of life (*pneuma*), holds together the human body as well as the entire world.⁵ Heraclitus

¹ Cf. B. A. van Groningen, *Kosmos*, Meded. Civitas Acad. Lugd. Bat. 5 (1947), 65-79; W. Kranz, *Kosmos*, Archiv f. Begriffsgesch. 2 (1955-57); H. Diller, *Der vorphilosophische Gebrauch von Kosmos und Kosmein*, Festschrift Snell (München, 1956), 47-60.

² Cf. F. Heinemann, *Nomos und Physis* (Basel, 1945), 89-109.

³ *Gorgias* 507 E — 8 A. The Hippocratic work *De flatibus* (5) posits a *koinonia* between the living being and the air.

⁴ With regard to water as the substance of life, cf. Aristotle *Metaph.* 983 b23; Schol. Pind. *Pyth.* 4, 145; M. Ninck, *Die Bedeutung des Wassers im Kult und Leben der Alten*, Philol. Suppl. 14:2 (Leipzig, 1921), 13 ff; R. B. Onians, *The Origins of European Thought* (Cambridge, 1951), 118, 229-233, 247-253, 272-4, 288-9, 473-6; E. R. Goodenough, *Jewish Symbols in the Graeco-Roman Period VI* (New York, 1956), 43 ff.

⁵ *VS* 13 B 2. On this subject, cf. W. Kranz, *Philol.* 93 (1939), 436; O. Gigon, *Der Ursprung der griechischen Philosophie* (Basel, 1945), 102-103; W. Jaeger, *The Theology of the Early Greek Philosophers* (Oxford, 1947), 207-8 n. 62-63; G. S. Kirk — J. E. Raven, *The Presocratic Philosophers* (Cambridge, 1957), 159-162.

called the world 'an eternally burning fire'.⁶ This fire is, at the same time, the principle of the soul, as animation and reason are, conversely, properties of the cosmic fire.⁷ That he conceived the world as a vital community becomes especially clear in his notion that all human laws 'are nourished by the one divine law'.⁸

Later thinkers did not believe that one single principle was sufficient. Parmenides explained the world as a mixture of light and night; but his cosmology has not the character of physical science, since the world is, for him, a growing organism.⁹ Neither did Empedocles conceive his four elements in a modern sense; he thought of them, rather, as divine substances with vital powers. He called them 'the root-masses of all things', and ascribed to them the power of augmenting themselves.¹⁰ The combinations of the elements he called 'limbs' of the world.¹¹

This plurality of principles gave the world-view a more differentiated character, but threatened to crumble the vital connection of the whole. Empedocles sought to counteract this danger through the introduction of two additional substances, love and hate, which bring about the unification and separation of the elements. But the differentiation proceeded further and reached its climax with Anaxagoras who accounted for the infinite variation of things by an equally infinite variation of the 'seeds' (*spermata*) of these things.

Thus the life of the world was saved, but at the expense of its

⁶ VS 22 B 30 v. G. S. Kirk, *Heraclitus, The Cosmic Fragments* (Cambridge, 1954), 317, writes: 'It is called "ever-living" because it is divine in the sense of being immortal ... and because, unlike terrestrial fire, it is never totally extinguished.' But fire was, for Heraclitus, actually a living thing, indeed the most living of all. This is made especially clear in Fragment 65 B, where the supreme principle is coupled with the name of Zeus, interpreted as 'the Living' (erroneously Kirk, 392). The other cosmic substances, too, are living forces. When Heraclitus says (B 36): 'For water, it is death to become earth', this death is no metaphor (as Kirk believes, 341-42), but a reality.

On fire as the life principle, cf. B. Snell, *Herm.* 61 (1926), 374-5; W. Jaeger, *Paideia I* (Berlin-Leipzig, 1934), 245; Gigon, *Ursprung*, 221-2; G. van der Leeuw, *Religion in Essence and Manifestation* (London, 1938), 60-64; C. M. Edsman, *Ignis divinus. Le feu comme moyen de rajeunissement et d'immortalité* (Lund, 1949); Onians, *Origins*, 155-167, 256-264. L. M. R. Simons, *Flamma aeterna. Studie over de betekenis van het eeuwige vuur in de cultus van de Hellenistisch-Romeinse oudheid* (Amsterdam, 1949), is unsatisfactory because the connection of fire and life is not taken into consideration.

⁷ Soul as Fire: B 36 (on this subject, Kirk, 340-1). Fire and Reason: K. Reinhardt, *Herm.* 77 (1942), 25-27; Gigon, *Ursprung*, 206, 216-17.

⁸ B 114. Kirk (53-54) is surprised at the expression 'nourish themselves', and calls it 'in some degree a metaphor'. But the term is undoubtedly intended in the literal sense and is immediately explained on the basis of Heraclitus' vitalism. The stars, too, 'nourish themselves' (A 11).

⁹ VS 28 B 19, 2. He calls the earth 'rooted in water' (B 15a).

¹⁰ VS 31 B 6; 37.

¹¹ B 27a; 30, 1; 35, 11. On the analogy between the microcosm and the macrocosm, cf. H. C. Baldry, *Embryological Analogies in Presocratic Cosmology*, *Class. Quart.* 26 (1932), 27-34; W. Kranz, *Kosmos und Mensch in der Vorstellung frühen Griechentums*, *Nachr. Gött. Ges.* 1938, 121-161; H. Hommel, *Mikrokosmos*, *Rhein Mus.* 92 (1943), 56-89; R. Allers, *Microcosmos. From Anaximandros to Paracelsus*, *Traditio* 2 (1944), 319-407; A. Olerud, *L'idée de macrocosmos et de microcosmos dans le Timée de Platon* (Uppsala, 1951).

order.¹³ The atomists Leucippus and Democritus sought to restore the order, but this was at the expense of life. In the new cosmos the essence of things and their connections were determined exclusively by their magnitude, form and place. Only a single remnant of the earlier vitalism was incorporated into this rigorous system, and even that was referred to by way of 'as if': like things associate themselves with one another 'as if their likeness exercised a certain uniting power on them'.¹³

This weakening of the cosmic vitality became equally apparent in the relation of man to the world and especially in man's concept of knowledge. Knowledge of the world was originally conceived as a special aspect of the vital relation existing between man and the world. We have already seen that Heraclitus' fire was regarded as the fundamental substance of both the world and the soul. The task of knowledge consisted in strengthening this vital connection: 'One must make oneself strong with that which is common to all.'¹⁴ Another fragment says: 'One must follow that which is common',¹⁵ i.e. let oneself be carried along with the motion of the cosmic fire. The expansion of knowledge is a growth of the soul-fire, the deepening of knowledge an increase in the dimension of depth in the soul.¹⁶ All these statements had as their basis the conviction that knowledge consisted in a real contact, and indeed in an identification, with things. This belief is to be found in Parmenides as well: for him, knowledge was the result of the mixture of light and night occurring in the human body.¹⁷

Now in Empedocles these notions underwent an important modification. A further differentiation was made in the substance of the organ of knowledge: 'It is through earth that we see earth, through water, water, through air, air, and through fire, fire.'¹⁸ The four elements, he thought, were to be found in the eye and reacted on the corresponding components of the perceived objects. This reaction — and this was the new idea — was interpreted in quantitative terms: the particles emitted by the things were thought to be

¹³ Socrates, already, remarked the want of an ordering force in the world-view of Anaxagoras (*Phaedo* 98 BC).

¹⁴ VS 68 B 164.

¹⁵ B 114. The word *ischurizesthai* is to be taken in the literal sense and means more than 'rely on' (Kirk, 48). Knowledge strengthens an already existing contact which is effected through inhalation: VS 22 A 16, 129. On this subject cf. Gigon, *Ursprung*, 231-3; Onians, *Origins*, 77.

¹⁶ B 2. The word *hepesthai*, too, is intended literally and should not be weakened to 'act in accordance with' (Kirk, 67).

¹⁷ B 115; 45

¹⁸ VS 28 B 16. Cf. my dissertation, *Parmenides. Some Comments on his Poem* (Groningen, 1942) Ch. I.

¹⁹ VS 31 B 109.

transformed into knowledge in so far as they fitted into the pores of the organs of knowledge.¹⁹

With this Empedocles took the first step in the direction of breaking up the vital connection between the knowing subject and its object. This development was completed by Democritus: for him, the thing itself no longer passed over to the knowing subject, as it still did for Empedocles; rather, little images (*deikela* or *eidola*) detached themselves from the things and produced an impression in the eye.²⁰ Thus direct contact with the object was replaced by a formal relation. In this context the word 'formal' was not intended in the sense of 'abstract' (for the image consisted of atoms and the impression was produced in the plastic substance of the eye). It was meant, rather, in the literal sense: knowledge was no longer identical with reality; rather, it corresponded with reality. This correspondence implied, not the formation of a duplicate or copy, but rather the reflection of reality in another sphere, namely the human sphere.

This notion signified a revolutionary turn in the history of thought. Knowledge detached itself from the vital community of *phusis*. Man was no longer absorbed in reality, but rather set himself over against reality. A division took place between subject and object. Contemplation (*theoria*) took the place of participation (*koinonia*).

The appearance of contemplation on the scene was accompanied by a stronger interest in the aesthetic aspect of things. Now, for the first time, the world really became a *kosmos*, although the word *phusis* remained in use. It is impossible to draw a sharp chronological dividing line. Pythagoras already stressed the harmonious connection of things and emphasized the value of contemplation.²¹

¹⁹ 31 A 86-92. On this subject, cf. J. I. Beare, *Greek Theories of Elementary Cognition* (Oxford, 1906), 14-23; W. J. Verdenius, *Empedocles' Doctrine of Sight*, *Studia Vollgraff* (Amsterdam, 1948), 155-164.

²⁰ VS 67 A 29; 68 A 135, 50-54; B 123. On this subject, cf. Beare, 23-30; K. von Fritz, *Democritus' Theory of Vision, Science, Medicine and History* (Essays Written in Honour of Ch. Singer, London, 1953, I, 83-99). In this and other studies, however, the principal difference between Democritus and Empedocles is not adequately pointed out.

²¹ Cf. his well-known dictum (Heracl. Pont. fr. 88-89 Wehrli): 'Life is like a sporting event; one enters in order to acquire fame, another to earn money, the best, however, come as spectators.' On this subject cf. R. Joli, *Le thème philosophique des genres de vie dans l'antiquité classique* (Bruxelles, 1956), 21-52. W. Jaeger, *Aristotle* (2nd Ed., Oxford, 1948), 432, and A. J. Festugière, *Les trois vies*, *Acta Congressus Madvigiani II* (Copenhagen, 1958), 133, deny that the assertion was made by the historical Pythagoras. But their arguments prove only that it can stem from the circle of the Academy, not that it cannot be older. Pythagoras appears to have been the first to call the world *kosmos* (VS 14 A 21; 28 A 44. Kranz, *Kosmos*, 13-15, finds this designation already in Anaximander and Anaximenes). On the other hand, he seems to have thought of the One as a seed (*sperma*). Cf. Arist. *Metaph.* 1091 a16, 1092 a32 and F. M. Cornford, *Plato and Parmenides* (London, 1939), 19.

The contemplative point of view is also present in Empedocles, especially in B 23, where he compares the origin of the world with the genesis of a painting. Anaxagoras calls *theoria* the aim of life (VS 59 A 29). An important tendency toward the dissociation of knowledge from the *phusis* is implied in his doctrine (B 12), that the divine mind (*nous*) is 'mixed with no thing, but rather alone and for itself'. Cf. also Euripides fr. 910.

On the other hand, the notion of participation did not disappear entirely with the emergence of the atomists. Plato described the visible world as a great organism that contained in itself all particular organisms.²² All parts of the *phusis* were considered akin to one another.²³ Although man was only a minute part of the whole, he was in close relation with the world as a whole and made his contribution to its preservation.²⁴ Plato found a more exact definition of this relation in the old notion of the microcosm. His idea was that the spherical form of our head copied the form of the universe, and that there was an affinity between the movement of the soul and the movements of the heavenly bodies.²⁵ This affinity was connected, further, with the origin and destiny of the soul: the soul originated from the region of the stars, and its destiny was to return to that place.²⁶ During its existence in heaven the soul got to know, by way of direct intuition, the ultimate reality, the world of archetypes.²⁷ This direct contact was lost upon its entrance into the body. There remained with us only a dim recollection of the archetypes, a recollection which we should try, to the best of our ability, to sharpen and raise to consciousness.

This recollection (*anamnesis*) is of particular interest here because it breaks through participation. Plato did, indeed, speak of an 'affinity' of the soul with ultimate reality,²⁸ but by this he did not mean that an immediate experience of the archetypes fell to the lot of man on earth. Recollection, he believed, does not occur by way of chance associations, but rather by methodically pursued reflection. Starting from every day opinion and making clear the principles underlying this opinion, we gradually approach the archetypes. But this approach never led to any identification. The final outcome was not, as in Neo-Platonism, a fusion with God (*henosis*), but rather an approximation to God (*homoiosis*).²⁹ Here participation — in other words, the affinity of the soul with the archetypes — played the role of a mere point of departure. In recollection itself, the distance from the object was always maintained. The highest knowledge never went beyond a vision of the archetypes achieved with

²² *Tim.* 31 B; 33 B; 92 C.

²³ *Meno* 81 C.

²⁴ *Laws* 903 C.

²⁵ *Tim.* 44 D; 47 BD; 90 CD; on this subject, cf. Olerud (see above, n. 13).

²⁶ *Phaedr.* 248-9; *Tim.* 42 D.

²⁷ The customary translation 'Idea' has already given rise to so many misunderstandings that one would like to avoid it.

²⁸ *Phaedr.* 79-80; *Rep.* 611 E.

²⁹ *The.* 176 B; *Rep.* 500 C; 613 B; *Tim.* 90 D; *Laws* 716 C. Cf. E. Hoffmann, *Platonismus und Mystik im Altertum*, S. B. Heidelberg 1934-35, II; C. G. Rutenber, *The Doctrine of the Imitation of God in Plato* (Morningside Heights, N.Y., 1946); L. Grenet, *Les origines de l'analogie philosophique dans les Dialogues de Platon* (Paris, 1948), 203-9.

difficulty.³⁰ In other words, man's proper attitude to the world as a whole was contemplation.³¹

This attitude of contemplation accords with the fact that Plato was especially sensitive to the harmonious connection of things. Although, as we have seen, the *physis*-idea did not disappear entirely, Plato, nevertheless, saw the world pre-eminently as a *kosmos*.³² This is especially clear from the fact that he assigned to the highest archetype, the Good, the task of bringing about order in the whole world.³³ Man's task was to bring about order in his own soul.³⁴ In this he let himself be guided, not merely by the moral order of the Good, but also by the visible order in the world: when man watched the regular circular movements of the heavenly bodies and repeated them in his mind, his thought itself became harmonious.³⁵ This notion shows, once again, how firmly the Platonic conduct of life is based upon contemplation.

In summary, we can say that Plato — who in this respect brought to completion a tendency in Greek thought — determined man's task with respect to the total of things as that of imitating the universal order, i.e. of representing, interpreting and realizing it on the human level. This imitation of the *kosmos* is a contemplative activity.³⁶

It would be interesting to follow this notion through the later development of Greek thought. It would then emerge that in Aristotle contemplation was further purified and made more fundamental.³⁷ In the Hellenistic systems it held its central place,³⁸ although participation (of human and divine reason) again made its appearance. But we shall not go into these questions,³⁹ since the Greek conception of the place of man in the world is here to serve merely the purpose of clarifying certain modern problems. To this end, acquaintance with the essential notions in the development of Greek

³⁰ *Symp.* 210 E — 211 A; *Rep.* 500 C; 517 B.

³¹ In the important book by A. J. Festugière, *Contemplation et vie contemplative selon Platon* (2nd Ed. Paris, 1950), Platonic contemplation is erroneously interpreted as mysticism, as e.g. on p. 191: 'L'Être le plus haut, Un ou Bien, est, au juste, un ineffable. On le touche, on s'y unit. A good criticism of this interpretation is to be found in G. J. de Vries, *Spel bij Plato* (Amsterdam, 1949), 43ff.

³² Cf. e.g. *Tim.* 40 A; 92 C.

³³ *Gorg.* 506 D; *Phaed.* 99 C; *Rep.* 508 E; *Tim.* 87 C; *Phil.* 64 E.

³⁴ *Gorg.* 504 D; *Rep.* 44 DE; *Tim.* 89 D.

³⁵ *Tim.* 47 BD; 90 CD.

³⁶ J. Stenzel, *Platon der Erzieher* (Leipzig, 1928), 156, confuses point of departure and aim when he writes: 'The linking of individual "nature" with the "entire" living nature is indeed the real aim of Socratic-Platonic learning.'

³⁷ Cf. W. Jaeger, *Aristotle*, 435 ff. That participation has not altogether disappeared is, however, indicated in such statements as: 'In the case of things without matter, the thinking and that which is thought are the same.' (*An.* 430 a3; cf. 431 b17; *Met.* 1072 b20; 1075 a1).

³⁸ Cf. Chrysippus in Cicero *Nat. deor.* II 14, 37: homo ortus est ad mundum contemplandum et imitandum.

³⁹ Some material in Kranz, *Kosmos*, 58ff; Festugière, *Les trois vies*, 146ff.

thought is sufficient. The latter may be summed up as follows: man originally experiences the world as a living whole (*physis*), and his relation to this whole as a vital connection; gradually he awakens to the understanding that participation does not exhaust his relation to the world, and that he must, rather, set himself, as a thinking and knowing being, over against the world, from which point of view (that of contemplation) the world presents itself as an ordered whole (*kosmos*). As a living entity, the world can only be experienced in feeling, whereas it can be known only as an ordered whole. Thus feeling and knowledge reveal themselves as two fundamentally different ways of becoming acquainted with the world.

In modern times, the feeling is often voiced that man has lost his connection with the world. The Flemish poet Guido Gezelle gave a particularly telling expression to this view:⁴⁰

Hoe klein, o God, hoe kleene,
donker en alleene,
lig ik in dien grooten al.

A similar view is to be found in D. H. Lawrence: 'We have lost the cosmos, by coming out of responsive connection with it, and this is our chief tragedy. What is our petty little love of nature — Nature! — compared to the ancient magnificent living with the cosmos, and being honoured by the cosmos.'⁴¹

It was hardly necessary to give these quotations, since it is affirmed on all sides that man has become lonely. This loneliness has found its most radical pronouncement in Existentialism. Existentialism has been expounded and judged in very different ways, but perhaps it will be worth the effort to view it for once as a striving to restore the bonds between man and the world, as a striving 'to live with the cosmos'.⁴²

A vital connection can only be experienced. But, as Lawrence

⁴⁰ Jubileumuitgave (Amsterdam, 1931), III, 24 (How small, O God, how small, dark and alone, do I lie in that enormous all).

⁴¹ *Apocalypse* (The Albatross, 1932), 74. Cf. also Kierkegaard's confession: 'I had no immediacy and thus humanly speaking, I have not lived.' (cited in F. Heinemann, *Existenzphilosophie lebendig oder tot?* Stuttgart, 1954, 33).

⁴² Heinemann, *Existenzphilosophie*, 17 ff., treats the self-alienation of modern man as the point of departure of existentialism. This is, perhaps, true for certain figures, as, for example, Sartre (whom, for this reason, I shall not consider here). But on the whole it seems to me that alienation from the world is more essential. What Heidegger wants is 'in die Nähe kommen zum Wesentlichen aller Dinge' (*Sein und Zeit*). Marcel writes: 'Le tout est de savoir comment nous situer par rapport à la réalité plénrière' (*Etre et avoir*, Paris, 1935, 47). When Jaspers says: 'Ich selbst bin nichts, wenn ich nur bin' (*Philosophie*, 2nd ed. Berlin, 1948, 335), he does not want to restore the inner harmony in man, but rather, in 'absolute consciousness,' to come into contact with the 'comprehensive'. (*das Umgreifende*).

expressed it, modern man has, for the most part, lost his power of experiencing the wholeness of things. He therefore grasps, unwittingly, at a surrogate, at thought. But as soon as thought is brought to bear upon the life of the world, this evaporates into something abstract. Man wants to strengthen the bond between himself and the world, but all he is able to do is to generalize it in his thought. Now the most general bond between man and the world is existence. This existence, in itself a 'bloodless' concept, is mixed with so many magic formulas and so long left in the boiling-pot of convulsive thought that it turns into a kind of cosmic elixir of life. This thought is convulsive because it tries to unite functions which are contrary to one another: it wants to realize participation by way of contemplation. A glance at the development of Greek thought as it was described above suffices to show that this cannot be done.⁴³ Whereas participation abolishes the distance between subject and object, contemplation presupposes this very distance. It is, therefore, to be expected that the attempt at a synthesis will lead to a mutual distortion. I should like to show this in some examples.

Heidegger's philosophy is an attempt to enforce the bond between man and the world as a whole by destroying, through thought, every concrete bond. An artificially evoked cosmic anguish⁴⁴ reduces man to his bare existence: 'In a trembling suspension, in which he can hold on to nothing, there remains only the pure existent'.⁴⁵ The accidental fact that the word 'Being' (*Sein*) is contained in the word 'existent' (*Dasein*) tempted Heidegger to take this 'Being' out of the sphere of statements, to which it belongs,⁴⁶ and to raise it to the basic cosmic principle. The problem of how one gets from the existent to Being is now solved in the following way: 'The question of Being is nothing other than the radicalization of a tendency towards Being which belongs essentially to the existent itself.'⁴⁷ This tendency towards Being on the part of the existent recalls the vitalism of

⁴³ The existentialist philosophers could also have taken the advice of their ancestor Kierkegaard, who called thought in relation to existence 'the most refined deceit' (Heinemann, 77).

⁴⁴ *S.u.ζ.*, 184ff. This cult of anguish issues from the conflict between the unconscious will to participation and the conscious will to contemplation (which through establishing a distance destroys every surrender).

⁴⁵ *Was ist Metaphysik?* (5th ed. Frankfurt, 1949), 17.

⁴⁶ Heidegger seeks to set aside this obvious objection (already raised, for example, by G. Misch, *Lebensphilosophie und Phänomenologie*, 2nd ed. Leipzig-Berlin, 1931, 40) by the assertion: 'Prädikation muss, um möglich zu werden, sich in einem Offenbarmachen ansiedeln können, das nicht prädikativen Charakter hat' (*Vom Wesen des Grundes*, 3rd ed., Frankfurt, 1949, 12). I can understand this 'settling' only as the expression of a sociological mythology. Cf. also *S.u.ζ.*, 54: 'Der Ausdruck "bin" hängt zusammen mit "bei"'. "Ich bin" besagt wiederum: ich wohne, halte mich auf bei.' *Platons Lehre von der Wahrheit, mit einem Brief über den Humanismus* (Bern, 1947), 84: 'In dieser Nähe [zum Sein], in der Lichtung des "Da", wohnt der Mensch.'

⁴⁷ *S.u.ζ.*, 15. Cf. 42: 'Das Wesen dieses Seienden liegt in seinem Zu-Sein.'

Heraclitus, whose soul-fire increased and strengthened itself with that which is common to all things.⁴⁸ But there is also a difference: whereas Heraclitus 'followed' the universal fire and nourished his soul with it, Heidegger conjures up Being out of the presupposed existent. The word 'conjures up' is not inappropriate here, for the radicalization of the tendency towards Being is described as a 'projecting over' (*Überwurf*), in which thought transcends itself and establishes its relation to the whole: 'transcendence means projection towards the world' (*Weltentwurf*).⁴⁹

But this projection towards the absolute is, from the beginning, caught up in a fundamental impotence: man himself is projected (*geworfen*), and 'every projection towards the world is thereby projected'. By virtue of this, the transcending lapses into possibilities and one fails to reach reality: 'And so man, as an existing transcendence toppling over into possibilities, is a being of the remote.'⁵⁰ In other words, participation has failed.⁵¹ It makes a tragic-comic impression when Heidegger consoles himself with the paradox that this remoteness is just the greatest nearness: 'It is only through the original remoteness which man develops in his transcendence to all existents that there arises in him the true nearness to things.'⁵²

Heidegger's paradoxes⁵³ are, however, something more than a clever device for getting out of the difficulty. He feels intuitively that his aim, participation, cannot be reached by way of thought. Never-

⁴⁸ Misch, *Lebensphil. u. Phän.*, 11, has already remarked upon the similarity between *S.u.Z.*, 15: 'Das Dasein ist zwar ontisch nicht nur nahe oder gar das nächste — wir sind es sogar je selbst. Trotzdem oder gerade deshalb ist es ontologisch das Fernste', and Heraclitus B 72: 'Men are sundered from that with which they are in most constant intercourse, and the things which they come up against every day are strange to them.' A further similarity is to be found in their tendency to etymologize: both believe that they can pick up the essences of things from language. Cf. *Platons Lehre*, 53: 'Die Sprache ist das Haus des Seins. In ihrer Behausung wohnt der Mensch. Die Denkenden und Dichtenden sind die Wächter dieser Behausung. Ihr Wachen ist das Vollbringen der Offenbarkeit des Seins.' Heraclitus' use of etymology is intended, in most cases, to show the relativity of the world of experience. (Cf. B. Snell, *Herm.* 61, 1926, 369ff.; Heinemann, *Nomos und Physis*, 53-56; W. J. Verdenius, *Mnemos.* 1959, 297); B 1 and 34 (*axunetoi — xunon*) and B 114 (*xun nooi — xunoi*) refer, however, to the connection between human reason and the world-principle.

Heidegger's spiritual kinship with Heraclitus has, however, not helped him to understand the latter. For example, his remark (*Wesen d. Gr.*, 22) on B 89 is based upon a gross shifting: first he says (correctly): 'Hier ist die Welt in Beziehung gebracht zu Grundweisen, in denen das menschliche Dasein faktisch existiert'; then he says (falsely): 'Dieses vorgängige Wie im Ganzen ist selbst relativ auf das menschliche Dasein. Die Welt gehört mithin gerade dem menschlichen Dasein zu.'

⁴⁹ *Wesen d. Gr.*, 42.

⁵⁰ *Ibid.*, 50.

⁵¹ Cf. Heinemann, *Existenzphilosophie*, 94: 'Heidegger scheint nicht weiter zu gelangen als bis zum "eigentlichen Ganzseinkönnen des Daseins". Er kommt nur bis zum möglichen, aber nicht bis zum wirklichen Existieren.'

⁵² *Wesen d. Gr.*, 50.

⁵³ As, for example, also *Wesen d. Gr.*, 35-56: 'Am Ende muss der Weltbegriff so gefasst werden, dass die Welt zwar subjektiv ist, aber gerade deshalb nicht als Seiendes in die Innensphäre eines "subjektiven" Subjekts fällt'.

theless, he clings to contemplation.⁵⁴ The outcome is a self-destruction of thought. Contradictions and circles are not merely accepted but positively valued.⁵⁵ They open the way, but not to Being, since this, too, is destroyed in the vortex; at the end of the path stands the Nought, not as a deplorable failure but as the result sought for.⁵⁶ Why is it sought? Because it is only here that the will to participation is rescued from the persecution of thought. This 'losing oneself in the Nought'⁵⁷ is, however, still not participation because there is nothing left in which one could participate. In this dilemma Heidegger again resorts to thought, although he had just escaped from it, for now Being is to be conjured out of the Nought. Thus he constructs the following conclusion: 'Being does not allow itself to be concretely represented and produced, as does the existent. This absolutely Other than all existents is the Not-existent. But this Nought exists (*west*) as Being.'⁵⁸ Possible scruples about this sleight-of-hand with the ambiguity of 'not' are swept aside as 'the precipitousness of an empty cleverness',⁵⁹ and we are required 'to experience in the Nought the ample spaciousness of that which gives to every existent the guarantee of being. That is Being itself'.⁶⁰

Nevertheless, the essence of Being remains, at this stage, 'not yet unfolded'.⁶¹ But it soon awakens to life. 'But Being — what is Being? It is It itself. The thought of the future must learn to experience and to say this.'⁶² This is reminiscent of Jehovah's 'I am what I am'. In fact Heidegger has, in his later writings, made Being more and more into a divinity. Divine Parousia now takes the place of human transcendence: 'Only in so far as Being sends forth its light is Being conveyed to man. But the fact that illumination, as the truth of

⁵⁴ It is significant that Heidegger can grasp participation in Parmenides only as contemplation; from the (correctly perceived) fact that the Greek philosopher does not contemplate the existent, he draws the (nonsensical) conclusion: 'Vielmehr ist der Mensch der vom Seienden Angeschaut' (*Holzwege*, Frankfurt, 1950, 83). On the other hand, true contemplation in Plato and Aristotle signify to him 'the end of Hellenism' (*ibid.*, 95).

⁵⁵ *S.u. Z.*, 153: 'In ihm [dem Zirkel] verbirgt sich eine positive Möglichkeit ursprünglichsten Erkennens'. Cf. 314ff. He even calls this thinking 'strenger als das begriffliche' (*Platons Lehre*, 41). Cf. also *Holzwege*, 247: 'Das Denken beginnt erst dann, wenn wir erfahren haben, dass die seit Jahrhunderten verherrlichte Vernunft die hartnäckigste Widersacherin des Denkens ist.'

⁵⁶ *Was ist Met.*, 28: 'das Nichts, das wir suchen'.

⁵⁷ *Ibid.*, 38.

⁵⁸ *Ibid.*, 41.

⁵⁹ Cf. *Wesen d. Gr.*, Foreword to the 3rd ed.: 'Jenes nichtende Nicht des Nichts und dieses nichtende Nicht der Differenz [zwischen Seiendem und Sein] sind zwar nicht einerlei, aber das Selbe im Sinne dessen, was im Wesenden des Seins des Seienden zusammengehört'. Although we have been told that 'formale Einwände ... bei Erwägungen über konkrete Wege des Untersuchens immer steril sind' (*S.u. Z.*, 7), we do not yet feel quite clear as to the profound difference between 'einerlei' and 'das Selbe'.

⁶⁰ *Was ist Met.*, 41. Cf. *Holzwege*, 104: 'Das Nichts ist niemals nichts ... es ist das Sein selbst.'

⁶¹ *Was ist Met.*, 41.

⁶² *Platons Lehre*, 76.

Being itself, takes place is the Providence of Being itself.'⁶³ Nor are the other characteristics of a formal religion wanting — characteristics such as the election and salvation of man, revelation, miracles, grace, thanksgiving, obedience, priesthood, renunciation, sacrifice and eschatology: 'The function of thought in preparing the way lies in illuminating the latitude within which Being itself could again relate itself originally to man's essence.' 'Man is "projected" into the truth of Being by Being itself, in order that he, existing in this manner, might watch over the truth of... Being. That which projects man into the project is not man, but Being itself... Man is the shepherd of Being.' 'Man alone, among existents, may experience, called by the voice of Being, the miracle of miracles: that the existent is... Sacrifice is taking leave of existents in order to preserve the favour of Being... Thought, obedient to the voice of Being, seeks the word for Being.' 'The Being of the existent comes together at the end of its destiny... The gathering-together in this leave-taking as the assembling of the extreme of its essence up to now, is the eschatology of Being.'⁶⁴ But if we ask: when will Being finally 'happen'? Heidegger answers: 'To be able to ask means to be able to wait, even for a life-time.'⁶⁵ Here again we sense the conflict: because participation is again and again disturbed by contemplation, we are left with waiting.

When one reads in Jaspers: 'Man is in the world, having grown from it and with it. He is a microcosm, that is to say, he is a mirror-image, a representation of the macrocosm in which there is nothing that is not also in him,'⁶⁶ one has the impression of being back in the realm of the pre-Socratics. But this impression is soon shown to be erroneous. The microcosm notion refers to the 'world-being,' whereas Jaspers is concerned with 'the real Being'. This demands participation of a higher order: when the depth of Being discloses itself, it is 'as if we had been, in our foundation, at the source of all things'.⁶⁷ He calls this experience 'knowledge which shares in the creation',⁶⁸ but it is not knowledge in the narrower sense. 'In place of knowledge the rise of the consciousness of Being remains the only real reply of existence itself.'⁶⁹ This existential 'rise' (which immediately recalls Heidegger's 'tendency towards Being' on the part of

⁶³ *Ibid.*, 83. Cf. *Was ist Met.*, 10: 'Zur Entscheidung steht, ob das Sein selber aus seiner ihm eigenen Wahrheit seinen Bezug zum Wesen des Menschen ereignen kann.'

⁶⁴ Holzwege, 194; *Platons Lehre*, 75, 84, 91; *Was ist Met.*, 42, 44-46; *Holzwege*, 301-2.

⁶⁵ So concludes his *Einführung in die Metaphysik* (2nd ed. Frankfurt, 1958).

⁶⁶ *Von der Wahrheit* (München, 1947), 107-8.

⁶⁷ *Ibid.*, 175-6. Cf. 238: 'in allem Weltsein und darüber hinaus denkend anwesend sein zu können'.

⁶⁸ *Ibid.*, 104, 112, 175, 217, 698, 1046.

⁶⁹ *Ibid.*, 176.

the existent) has two characteristics, both of which have their basis in the unconscious striving to unite participation and contemplation with one another⁷⁰: it is 'thought without an object'⁷¹ and 'because it remains without an object, it leads to no conclusion'.⁷²

Jaspers wants to keep thought without an object because participation in an object in the narrower sense is not possible. The inconclusiveness of this thought is not merely a consequence of its having no object, but even an intended end: thought may not achieve certainty because every fixation contains the danger of forming an object and thereby hindering participation. If we ask why Jaspers does not simply abandon thought in order to surrender himself unhindered to Being, the answer is that he wants at any price to proceed by way of contemplation: 'Every feeling of unity is questionable; in the purely immediate one soon loses oneself, and is stranded in arbitrariness, in the vital situation and movement of an isolated existent'.⁷³ Thought is therefore not abandoned but it is constantly surrounded and, as it were, tended by formulas of participation, such as 'becoming aware', 'grasping', 'conjuring', 'entering into' and 'going along with'. This thought strives towards the 'fusion of subjectivity and objectivity' through the 'dissolution of subjectivity into objectivity and of objectivity into subjectivity'.⁷⁴ But it never arrives at a synthesis; it remains fixed at the point of dissolution and hence of the negative. This happens because Jaspers, although he wants a 'radically different thought',⁷⁵ allows himself, at bottom, to be guided by ordinary thought, i.e. contemplation. He expresses this very point in the paradox: 'In philosophical thought there occurs a breaking through rationality which would like to make itself absolute; but this takes place by rational means.'⁷⁶ Jaspers wants to try 'to leap beyond his own shadow, to think, by way of methods which transcend reason by means of reason'.⁷⁷

As with Heidegger, contradiction and circle belong to these methods: 'In so far as philosophizing is meditating on transcendence, it arrives, in the end, at a circle which, although it destroys thought in the sense of proved knowledge, reveals it as philosophical by its

⁷⁰ Jaspers' participative interpretation of the word 'contemplation' shows how little aware he is of the background of his own thought: 'Kontemplatives Denken nennen wir das Denken, in dem Einheit von Gedanke und Sein erfahren wird' (*Wahrheit*, 357).

⁷¹ *Vernunft und Existenz* (Groningen, 1935), 113.

⁷² *Die geistige Situation der Zeit* (5th ed. Berlin-Leipzig, 1933), 147.

⁷³ *Wahrheit*, 699. Cf. *Antwort*, in P. A. Schilpp, *Karl Jaspers* (Stuttgart, 1957), 788: 'Wir wollen uns nicht mit dem "Gefühl" in irgendeiner Gestalt begnügen.'

⁷⁴ *Philosophie* (2nd ed. Berlin, 1948), 588, 590.

⁷⁵ *Philosophische Autobiographie*, in Schilpp, *Jaspers*, 28.

⁷⁶ *Ibid.*, 61. Cf. the similar paradox in *Wahrheit*, 188: 'Verliere dich nicht an ein Gewusstsein! Lasse dir das Denken nicht verbieten!'

⁷⁷ *Antwort*, 790. Cf. *Wahrheit*, 40: in order to overcome the objective character of thought what we need is 'ein sich selbst überschlagender Gedanke'.

power of expression and scope ... Every profound expression of transcendence, since it is not admissible as an object without losing transcendence, must bring about its own disappearance by a contradiction. Circle and tautology are the expression of the immanence that has nothing beyond itself but exists by itself; so contradiction is the expression of the existential impermanence of that which really is.⁷⁸ 'In order to remain close to Being itself, it is again and again a question of overcoming the mere identity of the concept ... As knowing, I must go beyond it in so far as I seek the non-identical: through movement in Being ... This movement is produced by contradiction.'⁷⁹ Jaspers calls this movement 'ascent to the suspended inner Being':⁸⁰ 'The downfall from stabilities which were, after all, deceptive becomes the ability to hang in suspense, the apparent abyss becomes the space of freedom.'⁸¹ Free from all the conditions of earthly thought, he hopes to find admission to the unconditioned:⁸² a perverse application of the ancient participation formula 'Like is known only by like'. This method is perverse because it is based on a deliberate self-destruction of thought. Jaspers is, from the beginning, set on foundering in thought, for 'finiteness cannot be leaped over except in the foundering itself'.⁸³ This intentional foundering is defined as 'the cautious propulsion of oneself into the vertigo in thought in which everything appears to spin; but this spinning, nevertheless, remains under my control so that through the dizziness I understand in not understanding'.⁸⁴ This dizziness (or, we might better say, this self-deceit) is kept in progress by a cult of anguish.⁸⁵

It is a question, therefore, 'of experiencing Being in foundering'.⁸⁶ It is true that the foundering does not lead us directly to Being, but rather to the Nought; but, with a Heideggerian trick, Being is conjured out of the Nought: 'The Nought is the real Being, as the not-Being of every determinate something.'⁸⁷ Yet Jaspers, like Heidegger, does not seem to have complete confidence in the magical power of this formula. So, with him too, Being turns into a divinity whose

⁷⁸ *Philosophie*, 689.

⁷⁹ *Wahrheit*, 299. Cf. 266: 'Im existentiellen Denken ist Argumentation und Rechtfertigung nicht mehr zwingend'. In the same way, *Philosophie*, 312: 'Alle Begründung und Verwerfung, Prüfung und Fixierung mit rationalen Mitteln durch Kategorien geschieht in der Welt, und geht gerade nicht auf Existenz.'

⁸⁰ *Wahrheit*, 1046.

⁸¹ *Einführung in die Philosophie* (München, 1953), 37.

⁸² *Wahrheit*, 185: 'Das Schweben des Denkens lässt das eigentlich Unbedingte frei.'

⁸³ *Philosophie*, 876. Cf. *Wahrheit*, 301: 'Die Auflösung des Denkbaren ist die Gestalt, in der durch Überwindung der Endlichkeit das Unendliche berührt wird.'

⁸⁴ *Philosophie*, 521.

⁸⁵ *Philosophie*, 523: 'Das absolute Bewusstsein muss sich stets ursprünglich wiederholen und bleibt in seiner Vergewisserung gebunden an faktische Angst.'

⁸⁶ *Ibid.*, 879.

⁸⁷ *Ibid.*, 712. Cf. *Einf. in die Phil.*, 37: 'Das scheinbare Nichts verwandelt sich in das, woraus das eigentliche Sein zu uns spricht.'

favour is invoked to help: 'The source lies in God. God must present to each man what he becomes by the fact that Being dawns for him.'⁸⁸ But if we ask whether this Parousia of Being really occurs now, we receive no unambiguous answer: 'If history is the process of Being revealing itself, then truth is always and never in history.'⁸⁹ So Jaspers' religion, too, in the end provides no firm support at all.

Marcel defines contemplation as 'a mode of participation', with the explanation: 'Contemplation is possible only for a being that has assured its grasp upon reality; it is, on the contrary, inconceivable for anyone who floats, in some way, on the surface of the real ... To contemplate is to recollect oneself in the presence of — and that in such a way that the reality in whose presence one recollects oneself somehow enters into the recollecting itself.'⁹⁰ The conjecture that this confusion of contemplation and participation has infected his entire philosophy with similar consequences as in the case of Heidegger and Jaspers, is confirmed by a further study of his work. Marcel, too, starts from the presupposition that Being is the deepest source of reality,⁹¹ that man seeks a firm connection with this source, and that this wish itself forms the beginning of such a connection (again, this reminds us of Heidegger's 'tendency toward Being' on the part of the existent).⁹² But this original participation is not enough for him: 'It will be of the essence of an authentic *coesse*, that is to say, of a real intimacy, to commit itself to the decomposition which critical reflection makes it undergo.' But one cannot stop at this dissolution through reflection; there must be a second reflection in order to restore the unity: 'there is another reflection, a reflection bearing upon this reflection itself, a reflection which refers to a

⁸⁸ *Wahrheit*, 1054. Cf. *Der philosophische Glaube* (Zürich, 1948), 64: 'Das wesentliche ist, dass der Mensch als Existenz in seiner Freiheit sich geschenkt erfährt von der Transzendenz'; *Über Bedingungen und Möglichkeiten eines neuen Humanismus*, *Die Wandlung* 4 (1949), 731: 'Die Transzendenz spricht in der Freiheit des Selbstseins als dem Organ, in dem der Mensch ... unmittelbar vor Gott sich geschenkt werden muss, um eigentlich Mensch zu werden.'

⁸⁹ *Philos. Glaube*, 137.

⁹⁰ *Le Mystère de l'Être* (Paris, 1951), I, 139, 142.

⁹¹ The objection that this Being is a hypostasization of the copula is answered in the same way as in Heidegger: 'Si je dis par exemple: cette pierre est p esante, ou cette pierre est blanche, ce ne sont là que des spécifications de l'affirmation globale: cette pierre est' (*Mystère de l'Être* II, 24, with the warning: 'On ne saurait trop se méfier des exemples qui figurent dans les traités de logique'). Marcel himself has noted that this view leads to an infinite regress, cf. *Être et avoir*, 203-4: 'ce *cela est* suppose lui-même une affirmation. D'où une régression qui paraît sans terme'. But he quickly reassures himself with a mystical explanation: 'Ne pressons pas ce point cependant. Admettons une sorte d'investissement préalable du moi par l'être.' Cf. 177: 'L'être tout court irradie dans l'être de la copule.'

⁹² *Position et approches concrètes du mystère ontologique* (Paris, 1933), 261: 'A cette être, à cette réalité j'aspire avidement à participer en quelque manière, et peut-être cette exigence elle-même est-elle déjà en effet à quelque degré une participation, si rudimentaire soit-elle.' Cf. *Être et avoir*, 36: 'Toute connaissance portant sur la chose et non sur l'idée de la chose ... implique que nous sommes reliés à l'être.'

blind but efficacious underlying intuition whose secret magnetism it undergoes'.⁹³ How one is to imagine this reflection 'in the square' is not clarified.⁹⁴ But this is not too important since, in the last resort, everything comes from above, so that man becomes the place where divine Parousia resides.⁹⁵

From the foregoing remarks we can draw the conclusion that Heidegger, Jaspers and Marcel have founded a pseudo-religion, the hybrid form of which is based upon the mixture of participation and contemplation, of religious feeling and logical thought. I have already hinted, in this regard, that the main cause of this confusion must be sought in the lack of capacity for real participation, of sound religious feeling. But there are other circumstances which may have helped to produce this result. Jaspers, in his early years, often felt that he was alone and misunderstood.⁹⁶ We know enough about Heidegger's political activity in the Third Reich.⁹⁷ Marcel writes: 'In this ever more collectivized world of ours, any real community seems more and more inconceivable.'⁹⁸ It seems to me not impossible that the first effect of their thought in society disappointed them so strongly that they now seek, as thinking beings, to find approval in the cosmos itself. In other words: the fact that their contemplative endeavours failed to lead to social participation has moved them to satisfy their contemplative needs in religious participation. It is easier, after all, to find the sympathetic ear of God than of men.

Finally it must be taken into account that it has become almost impossible for modern man to regard the world as an organism. On the other hand, it is difficult for us to participate in anything except persons.⁹⁹ But this does not entitle us either to give a contemplative interpretation to participation or to assimilate contemplation to par-

⁹³ *Position et appr.*, 292.

⁹⁴ *Ibid.*, 269. Marcel himself has really indicated the questionability of this reflective handling of participation when he writes: 'Une participation réelle ne se laisse aucunement traduire en langage d'objet. Il est tout à fait évident que la terre à laquelle le paysan est si passionnément attaché n'est pas chose dont il puisse vraiment parler' (*Myst. de l'Être* I, 133).

⁹⁵ *Position et appr.*, 310: 'La reconnaissance du mystère ontologique ... n'est sans doute possible que par une sorte d'irradiation fécondante de la révélation elle-même.' *Ibid.*, 266: 'Mon interrogation sur l'être présuppose une affirmation où je serais en quelque manière passif, et dont je serais le siège plutôt que je n'en serais le sujet.'

⁹⁶ Cf. *Philos. Autobiographie*, 2 (as a student at the gymnasium): 'Ich stand allein'; 3 (as a student at the university): 'wie schmerzvoll die Einsamkeit'; 5: 'Oft wurde ich nicht verstanden ... verschleiert war mein Wesen durch die Einsamkeit'; 24: 'Im Kreise der Berufsphilosophen galt ich als Fremder'; 26 (in the years 1922-31): 'Mein Ansehen in Heidelberg sank bis zu dem Punkt, dass ich für erledigt galt'; 30: 'Seit meinen Schuljahren litt ich unter der Einsamkeit.'

⁹⁷ G. Schneeberger, *Ergänzungen zu einer Heidegger-Bibliographie* (Berne, 1960).

⁹⁸ *Myst. de l'Être* I, 35. The whole chapter treats of 'Le monde cassé.'

⁹⁹ Cf. Jaspers, *Antwort*, 783: 'Wirkliche Kommunikation gibt es nur von Mensch zu Mensch in der Gegenseitigkeit.'

ticipation.¹⁰⁰ It is, rather, the task of the present to draw a clear-cut line between participation and contemplation and to keep them within their natural limits. No one is forbidden to experience his relation to the world in a vitalistic way. But such an experience has nothing to do with knowledge of the world: knowledge, whether it be scientific or philosophical, is based upon a distance which realizes itself in contemplation.

(Translated from the German)

¹⁰⁰ Jaspers, *ibid.*, writes: 'Diese wirkliche Kommunikation dient nur als Gleichnis für jene faktisch einseitigen Beziehungen zur Natur und zur Transzendenz.' We have seen how such a use of participation becomes inadvertently a fatal assimilation. Heinemann's wish (*Existenzphilos.*, 191, 192, 194) seems to me no less fatal: 'dass ein Wissen durch Teilhabe, wie es bei den Griechen herrschte, und ein Wissen durch Erleuchtung, wie es das Mittelalter kannte, in einer Mannigfaltigkeit von Formen wiederum möglich wird', whereby the subject-object relation is taken up into a 'reply-relationship'. It is inconceivable to me that a philosopher who has proved to have a sharp eye for the weaknesses of existentialism could come forth with so naive a thought. The development of this idea in *Jenseits des Existentialismus* (Stuttgart, 1957) proves to be a mythology of 'replying'.

SOCIOMORPHIC MODELS IN BIOLOGY

BY HANS M. PETERS

THE question of the origin of scientific theories is a problem that very largely, though not entirely, eludes rational treatment. It can certainly not be coped with by logical analysis. One must agree with K. R. Popper when he says: 'The initial stage, the act of conceiving or inventing a theory, seems to me neither to call for logical analysis nor to be susceptible of it.'¹ Is this, then, a psychological problem? Undoubtedly the problem has much to do with psychology, but it does not seem to fall entirely within its domain. At least two sets of conditions are known upon which a theory is or can be dependent, but the examination of these conditions is not a proper subject for psychology. First, a new theory must take account of the conditions set by the object with which it is concerned. Secondly, so at least it is maintained, influences received by the author from the general situation of his epoch may also make themselves felt in his theory.

The following contribution will investigate influences of the last-named kind within the field of biology, and will be confined mainly to the sociological aspect of the historical situation. Such connections have often been asserted. Yet there has been far too little discussion of the question as to how the alleged dependence of the theory upon the contemporary social situation is to be conceived, i.e. in what way the social situation could enter the theory.

In such a discussion a term used by E. Topitsch² proves useful and at the same time hints at the nature of the connections to be considered, namely the term 'sociomorphic model'. Topitsch employs the term in reference to specific metaphysical and philosophical doctrines for which in his view certain forms of social order served as 'models'. Our question, therefore, is: Have sociomorphic models occasionally played a role in the formation of biological theories, and what is this role?

Cuvier's Catastrophe Theory

A brief discussion of a theory, belonging only indirectly to biology, will clarify the task and reveal its great difficulties. It is the once celebrated 'catastrophe theory' of Georges de Cuvier (1769-1832). According to this doctrine the earth was in remote geological times repeatedly stricken by vast upheavals. Immense tracts of land were suddenly engulfed by the floods while other regions emerged high

¹ Popper, K. R., *The Logic of Scientific Discovery*, London, 1960, p. 31.

² Topitsch, E., *Vom Ursprung und Ende der Metaphysik. Eine Studie zur Weltanschauungskritik*, Vienna, 1958.

above the sea. Life was preserved only in the unaffected areas, from which animal and vegetable forms that had escaped destruction were able to gradually spread out again.³

This theory prevailed at the end of the eighteenth and the beginning of the nineteenth century. It was then replaced by 'actualism', which admits only slow, continuous changes in the earth's surface.

The catastrophe doctrine appears to reflect the whole insecurity of the epoch in which it arose.⁴ Besides we know from its author's biography that he, the later minister and peer of France, experienced in Paris all the vicissitudes of the revolutionary period at close hand. What would be more obvious than the conclusion that there is an inherent connection between his theory and the social conditions of the age? 'Every notion, every hypothesis and theory', writes W. von Seidlitz,⁵ 'is a *child of its time*, as is the vocabulary employed in its presentation. Hence it is not surprising that Cuvier, a disciple of the French Revolution and one who fought for it, even though with an open mind, should think in terms of catastrophes and revolutions.'

But however self-evident this view appears to be, it would be difficult to prove it conclusively. It is clear that theories of natural science are determined not only subjectively by their originators, but also objectively by the observed natural reality. And if we regard the matter from this point of view, it immediately presents a quite different appearance.

Cuvier is considered one of the founders of comparative anatomy. He studied the interrelationship between the structural peculiarities of animals in the organism as a whole. To enable himself to draw, from the structure of the individual parts, conclusions about the organization of an entire animal body he developed a hitherto scarcely used method. With this method in his possession he found the study of fossil remains a rewarding field. While working through the fauna in the Paris basin deposits, he was struck by evidence of abrupt transitions in the animal world from stratum to stratum. This discontinuity had to be explained. The fact itself greatly facilitated the use of an explanatory model, such as the revolutionary period presented, inasmuch as the very peculiarity of the observed pheno-

³ Cf. Cuvier, Baron G., *Discours sur les Révolutions de la Surface du Globe, et sur les Changements qu'elles ont produits dans le Règne Animal*. 6ième Ed. Fr. Paris and Amsterdam, 1830. The common misconception that Cuvier supposed life had been completely extinguished by each catastrophe and then created anew is criticized by R. Potonié (*Zu Cuvier's Kataklysmentheorie*) in 'Palacontol. Zeitschr'. 31, 1957, pp. 9-14.

⁴ The theme is clearly hinted at in the introduction: Just as the peaceful country with its thriving townships 'n'est jamais troublé que par les ravages de la guerre ou par l'oppression des hommes en pouvoir', nature has also had 'ses guerres intestines' and the surface of the earth has been stricken 'par des révolutions et des catastrophes'.

⁵ Seidlitz, W. von, *Revolutionen in der Erdgeschichte*, Jena, 1920, p. 8.

menon suggested the idea of periodic annihilation. Thus the theory could have resulted from a happy coincidence of the model derived from the contemporary situation with the objective conditions of the subject-matter. And this is what may have occurred. But it is possible to object that geological cataclysm doctrines had existed before Cuvier without an analogous sociological correlation being recognizable. Catastrophes, particularly natural catastrophes, belong to the common stock of human experience. So long as thought had hardly transcended man's historical measure of time and the idea of continuous step-by-step changes in the earth's history was yet unknown, the direct perception of faults and upheavals in the strata of mountains could lead the observer to assume catastrophic events to be the cause.⁶ But to argue in this fashion leaves unexplained the fact that it was with Cuvier that the catastrophe doctrine first assumed an important role in scientific thinking. The considerable regard now all at once paid to it may well rest on the concurrence of its factual content with the characteristic trends of the historical situation. In this case the alleged 'child of its time' would have to be considered a 'foster child' of its epoch rather than a 'natural' offspring.

We fail to see any considerations which could decide between all these possibilities. Perhaps such a question cannot be decided at all. But assuming one were able to survey the many conditions surrounding the theory better than is the case with regard to Cuvier, then the attempt could be made to further clarify various aspects of the problem. In this connection the examination of, for example, Darwin's theory on the origin of species appears more fruitful. We here have the great advantage that Darwin himself left behind several notes on the conception of his ideas. These remarks, it is true, are incomplete and leave much in the dark; but taken together with various biographical data, they still make a cogent reconstruction possible.⁷

⁶ Such arguments also play a part in Cuvier, and it is possible that general considerations of this kind, and not specific palaeontological finds, led in the first place to the catastrophe theory. Among recent authors Charles Singer, for example, does not consider this possibility in *A History of Biology*, London, 1950, pp. 231-2.

⁷ Of importance apart from Darwin's own works on the theory of descent are especially: *The Autobiography of Charles Darwin, 1809-1882*, with original omissions restored, edited with Appendix and Notes by his granddaughter Nora Barlow, London, 1958. Also Darwin's early notes on his ideas on the theory of descent, and the first published sketch of the latter; see Beer G. de (Ed.), *Charles Darwin and Alfred Russel Wallace: Evolution by Natural Selection*, Cambridge, 1958. *Life and Letters of Charles Darwin*, ed. by his son Francis, London, 1887. Among the older accounts of the origin of the theory of selection may be mentioned: S. Tschulok, *Über Darwin's Selektionslehre. Historisch-kritische Betrachtungen*. Supplement 12 to the quarterly of the Naturf. Ges. Zürich, Nr. 26, 81st year, 1936. A new critical examination is given by Gertrude Himmelfarb, *Darwin and the Darwinian Revolution*, London, 1959. My own brief sketch is restricted to aspects which appear to me of importance, and attempts to join these into a whole.

Darwin's Theory of Evolution. The Idea of a Genealogical Relationship

Darwin's doctrine is made up of two distinct chains of reasoning. One concerns the theory of the general genealogical relationship between living organisms, while the other comprises a theory of the causality of this evolution. In his work 'On the Origin of Species by means of Natural Selection'⁸ Darwin has interwoven the two theories and represented them as though they formed an inseparable unity. Actually, however, there exist two heterogeneous constituents, not only regarding the content, but also from the historical and biographical viewpoints.⁹ The theory of the evolutionary relationship between organisms had appeared in various attires long before Darwin ('theory of evolution'). It is Darwin's historical merit that he finally established this theory and thus put biology on a new basis. The theory of the causal explanation of evolution ('theory of selection'), on the other hand, is Darwin's entirely original contribution. It is to this alone that the term 'Darwinism' should be confined.

In the present context it is above all the theory of selection which is of interest because a closer proximity to the social situation of the epoch can be detected in it. Since, however, the theory of selection continues the theme of the theory of evolution and in a certain sense completes it, we cannot entirely dispense with an account of the whole chain of reasoning.

Reducing the matter to a brief formula, we can say that Darwin first rediscovered for himself the idea of the genealogical relationship between living organisms. For although he already knew of certain theoretical sketches of evolution (or transmutation, as it was then termed), he set out on his voyage round the world in the *Beagle* (1831-36) convinced of the truth of the prevailing doctrine of the immutability of species. This expedition was destined to bring about the decisive turn, or at least prepare the way for it. For on this voyage, called by Darwin himself 'by far the most important event' in his life, the young scientist's mind, which was set entirely in the direction of the sensually perceptible, found the idea of the constancy of species confronted by the reality of nature. I will point out just two experiences that were kindled by this conflict. Darwin himself described them as particularly significant.¹⁰

The discovery in South America of fossil remains of animals whose genus was there either quite extinct or present only in divergent forms brought home to Darwin in impressive examples the pheno-

⁸ *On the Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life*. 1st ed., London, 1859.

⁹ Cf. Tschulok, loc. cit., footnote 7.

¹⁰ Cf. *Autobiography*, p. 118.

menon of the variation of fauna in the successive stages of the earth's history. On the Galapagos Islands the young Darwin found himself faced with a further example of the variation of fauna, but here with regard to the distribution of species not in time but in space. For certain species of the archipelago varied from island to island to a small but noticeable extent, and all came close to forms of the neighbouring South American continent.

Such more or less clear gradations of forms distributed in time and space fitted awkwardly into the traditional doctrine of creation with its assumption of constant species. If I have correctly interpreted the various relevant statements made by Darwin, he missed a recognizable motive able to account for this peculiar order of things from the standpoint of the former theory. On the other hand it could quite easily be made to fit the assumption that forms of life distributed in time and space are variable members of a single continuum.¹¹

Behind this conception of his lie without doubt two important influences. One of them originated with William Paley, whose significance for Darwin is usually insufficiently recognized.¹² During his theological studies in Cambridge Darwin could 'almost say by heart' the 'Natural Theology' of this one time leading physico-theologist, so great had been its influence upon him.¹³ In this book Paley had presented a magnificent picture of nature as the work of God. The purposefulness everywhere exhibited so impressively in the life and structure of creatures was for Paley direct and irrefutable evidence of the Creator's wisdom. If His work is regarded from this point of view, the world becomes 'a temple, and life itself one continued act of adoration'.

From everything that Darwin himself noted concerning his

¹¹ During the voyage itself Darwin probably did not advance beyond occasional slight doubts about the doctrine of the stability of species. But evidently the impressions he received had subsequently a strong effect upon him and motivated the search for a satisfactory explanation. It was not before the spring or summer of 1837, during the evaluation of the *Beagle* results, that Darwin may be supposed to have finally embraced the transmutation of species (cf. Himmelfarb, loc. cit.).

¹² For Darwin's early connections with physicotheology see Tschulok loc. cit., footnote 7. William Paley, *Natural Theology or Evidence of the Existence and Attributes of the Deity, Collected from the Appearances of Nature*. In: 'The Whole Works of William Paley', London, 1835. In Paley one meets with numerous specific instances of the purposefulness of animal and plant organizations, which were subsequently given a new interpretation by Darwin from the standpoint of his theory. The structure of the eye appears in Paley time and again as a major argument for the theological proof. For his own part Darwin, who most probably took over this instance from Paley, feels the eye to be one of the main difficulties for his theory; this may be gathered for example from his correspondence.

¹³ Letter to John Lubbock (November 15th, 1859): 'I do not think I hardly ever admired a book more than Paley's *Natural Theology*. I could almost formerly have said it by heart.' (*Life and Letters*, II, p. 219). This contrasts vividly with the remark in *Autobiography*, p. 59, that the study of Paley's works 'was the only part of the Academical Course which, as I then felt and as I still believe, was of the least use to me in the education of my mind'. But basically these two quotations are complementary.

relationship to religious belief, we may conclude that it was not his basic religious feeling which prompted his opposition to physico-theology. It was a quasi-factual matter. Here was a hypothesis which completely failed to meet the need of causality. For how was one to imagine the direct emergence of organisms as empirically given things from spiritual acts of creation? Here was a gap unbridgeable by any knowledge. Darwin put into this gap the causal process that goes on in time step by step as the 'natural' form of development and thus gave the problem a turn in the direction of natural science.

He was influenced here no doubt by Charles Lyell (1797-1875). The latter's significance for Darwin has been emphasized time and again, and scarcely an account in this field fails to point out that the first and later the second volume of Lyell's then recently published *Principles of Geology* accompanied Darwin on the *Beagle* voyage. Yet it is not always quite clear why Lyell was of such immense importance for his younger colleague. This importance can be fully understood only when the doctrine of the geologist and 'Natural Theology' are considered together. Lyell's work bears the subtitle 'An Inquiry how far the former Changes of the Earth's Surface are referable to Causes now in Operation'.¹⁴ This indicates the basic tendency of the doctrine: the analysis of former changes in the earth's crust is guided by the play of forces everywhere observable in the present. These changes form a single continuum of smooth transitions in an uninterrupted chain of cause and effect. Phenomena which apparently point to world-wide natural catastrophes (cf. Cuvier) are actually the accumulative effects of everyday causes. Admittedly, in order to dissolve the appearance of abrupt discontinuity, the time measure of human history must be left far behind, and one must think in terms of millions of years.

Here we have the very scheme of development in nature that Darwin needed in order to overcome the theory of creation of life and to fill the gap left open by Paley. Admittedly, what Darwin was able to find in Lyell was only the general principle of a solution, not the solution itself. For there remained the question of the specific character of the causes at work in the process of organic transformation. What Darwin knew from the literature on this subject was so vague and nebulous that it could not satisfy his perspicacious mind. Yet for a long time he himself was unable to find a better answer; so at first he found himself incapable of merging his various points of departure into a unified theory.

¹⁴ Ch. Lyell, *Principles of Geology*, 3rd ed., vols. I-IV, London, 1834-35.

The Theory of Selection

From Darwin's own notes we know in what direction he looked for the still missing idea. He sought first to clarify the problem of the changes in the species in a field where experience had already been gained. This was the field of breeding of domestic animals and cultivated plants. Domesticated animals and cultivated plants with their many artificially produced species were striking proof of the mutability and variability of animal and vegetable organisms. But even more important, the scheme of their genesis was apparently known: owing to natural variability there is in every generation a more or less wide distribution of the characteristics of individuals. Variants pointing in the direction of the goal aimed at by the breeder are made to reproduce, while the others are eliminated. In the next generation of offspring the same process of chance variability and methodical selection is repeated — and so forth through long successions of generations. Finally, there arise through the accumulative effect (cf. Lyell) of this 'artificial selection' entirely new species, whose characteristics may diverge considerably from those of the ancestral form.

This procedure of breeding practice appeared to Darwin from the start to be an explanatory model for the process of the formation of species in nature. The only difficulty was that in nature a planning and selecting authority could not be assumed.

This now is the point where the much-cited inspiration from Malthus became effective. Darwin himself says with reference to this:¹⁵

I soon perceived that selection was the keystone of man's success in making useful races of animals and plants. But how selection could be applied to organisms living in a state of nature remained for some time a mystery to me.

In October 1838, that is, fifteen months after I had begun my systematic inquiry, I happened to read for amusement Malthus on *Population*, and being well prepared to appreciate the struggle for existence which everywhere goes on from long-continued observation of the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved, and unfavourable ones to be destroyed. The result of this would be the formation of new species. Here, then, I had at last got a theory by which to work.

¹⁵ *Autobiography*, pp. 119-20.

The theory in its final conception is based on a chain of reasoning which may be summarized as follows.

In nature there exists a 'natural selection' corresponding to the artificial selection practised by man. This natural selection, however, follows a mechanical scheme. Every species generates a large surplus of offsprings. In comparison with the large number of offsprings, however, only few individuals survive and, entering the succession of generations, ensure the continuity of existence in time. Direct observation shows that this is the case. A simple argument demonstrates that it could not be otherwise. The reason why from generation to generation the vast majority of individuals perish prematurely is that the potential of propagation exceeds the possibilities of survival. In proportion as numbers multiply, living space and means of subsistence, etc., decrease. Over-propagation as such automatically calls forth counteracting forces which curb the development of the potential. Thus the survival of species is confined to a small part of the individuals reproduced.

This conception enabled Darwin to follow Malthus closely. The latter caused him to realize clearly that over-propagation is a basic biological fact. Malthus showed that the natural tendency of organisms to propagate is so strong that the entire earth would in a very short time become overrun by a single species, e.g. the fennel, if this were not prevented by the hard law of necessity: over-propagation contains within itself the germ of its own destruction. 'The germs of existence contained within this earth, if they could freely develop themselves, would fill millions of worlds in the course of a few thousand years. Necessity, that imperious all-pervading law of nature, restrains them within the prescribed bounds.'¹⁶ Lack of means of subsistence and of space, for example, act as guardians of this law.

Malthus was interested in the fact of over-propagation only in so far as it determined the biological being of man and inasmuch as the impoverishment of human society could be deduced from it. For Darwin, however, over-propagation gained a quite new and much broader significance. Through linking this with the phenomenon of variability, he discovered the principle of selection as the centre of a new causal theory of evolution.

Here we are at the decisive point where the transformation of the breeder's scale of values into the scale of objective conditions of survival takes place. For Darwin says: among the multiplicity of all existing variations the surviving ones must be those which were best

¹⁶ T. R. Malthus, *An Essay on the Principles of Population, or, a View of its past and present Effects on Human Happiness; with an Inquiry into our Prospects respecting the future Removal or Mitigation of the Evils which it occasions*, vol. II, 6th ed., London, 1862, p. 3.

adapted to the given conditions of life. And with the continued repetition of this 'selection' in successive generations, there must arise ever more radical 'transmutations'.

Explanatory Models

If we now consider the role occupied by explanatory models in the theory of selection, the function of the auxiliary concept of breeding practice is first clearly recognizable. In the terminology of E. Topitsch we deal here with a 'technomorphic model'. With Nicolai Hartmann we can also speak of an 'as-if'-conception. Using Kantian terminology, he formulates it thus: Darwin conceived the transformation of species as if 'an intelligence, even though not our own, were carrying out a selection of individuals for the purpose of adapting the species to given conditions'.¹⁷ Darwin, he holds, gave the precise answer to the question of what is concealed behind this 'as if'. This is an apt formulation. The metaphor in the linguistic formula (natural 'selection') must not prevent us from recognizing the objectivity of the facts revealed. The term 'selection' changed its meaning completely after the goal of knowledge had been reached; it is retained only as a convenient designation of what is meant otherwise.

What relation has that which is meant to the experience from which it was originally deduced?

In discussions on the principle of selection the remark that it really expresses something self-evident has occasionally been made. Yet it is in just this that Nicolai Hartmann sees a confirmation of the principle. For whoever argues in this manner 'admits that this principle, once comprehended in its essence, is self-evident. What it expresses is not just an empirical proposition, but a genuine *a priori* insight. The breeder's experience, from which Darwin once set out, here merely leads up to the principle. The principle itself, in its general significance, goes far beyond this and every other experience. It also applies then to these very processes of transformation which are in no wise still the object of direct observation. For these processes move on a geological time scale — thus much too slowly for human observation. Insights of such a general character, when they are objectively self-evident, have the character of *a priori* knowledge. This apriority is nothing other than the reverse side of the categorical character of selection'.¹⁸

Besides the technomorphic model there is a sociomorphic element in the overall conception. Both are interwoven; their functions are

¹⁷ Nicolai Hartmann, *Philosophie der Natur. Abriss der speziellen Kategorienlehre*, Berlin, 1950, p. 641.

¹⁸ Loc. cit., p. 646.

complementary. Darwin himself alludes to the sociomorphic components in the sentence 'and being well prepared to appreciate the struggle for existence which everywhere goes on ...' (see above).

It appears to have been this auxiliary concept which paved the way for the transition from the breeder's principle of selection to the sought-after objective principle of selection in nature. In human society individuals are in competition with one another in so far as the goals striven for are not attainable by all. The victor is he who by reason of advantageous qualities or his favourable position is ahead of the others. Correspondingly, one can assume in nature survival, remaining alive, to be the goal pursued by every individual of a species. In consequence of over-propagation this goal is attainable by only a small number of them. The condition of success is the degree of adaptation to external circumstances.

Here, too, the metaphor of the provisional conception does not enter the knowledge as such. All that the latter has in common with the metaphor is the name. For it is clear that by 'competition' nothing else is meant objectively than the differing probabilities of survival resulting from the unlike characteristics of the variations. In speaking of competition and the related 'struggle for existence' and 'survival of the fittest' we merely use abbreviations (N. HARTMANN) for very complex natural conditions.

The Question of the Relationship with the Contemporary Situation

There emerges unmistakably in these words a specific mark of Darwin's epoch, a trait which to a large extent gave the rising industrial society, particularly in England, its peculiar character. It is thus easy to suppose that the origin of those sociomorphic influences is to be sought here. However, it is hardly possible to go beyond a conjecture. The impossibility of assigning a model with certainty to a contemporary situation results from the fact that competitive conditions of every kind occur at all times in human social life — even though they have not always determined the tone of the age to the same extent as in Darwin's days. We are here faced with a difficulty analogous to that encountered when dealing with Cuvier's catastrophe theory.

But even if one accepts this conjecture, there remains the question how far Darwin was directly influenced by the contemporary situation and by contemporary biological literature, in which the idea of competition, the struggle for existence, already occupied a prominent place. I see no possibility of deciding this question one way or the other.

In this article I have endeavoured to determine as exactly as

possible the point in the rich texture of Darwin's thoughts which may be considered the point of juncture with the social situation of the epoch. This led to an assessment of the connection, which in comparison with many other judgments is cautious. The authors of two well-known histories of biology go considerably further.¹⁹

Emmanuel Rádl makes the following comment. Darwin 'himself raised the problem (of evolution); but by linking it with the contemporary streams of thought, he answered it in the spirit of his time'.²⁰ He continues later: 'He held the whole of living nature to be a society in the sense of economic theory, a state, consisting of animals and plants acting in accordance with their own impulses. Just as the state was represented as a unit consisting of individuals whose egoistic interests are restrained only by the egoism of others, so Darwin conceived organic nature as a whole composed of individuals pursuing their individual interests. This was a new and grand conception of a *natural economy* in which animals and plants are members of a society, citizens of nature, analogous to the citizens of the state. Liberalism denied the state authority to make laws that would affect the rights of the individual; Darwin, too, always opposed the belief that nature is governed by some higher law regulating the relationships between animals; animals and plants made laws for themselves by their egoistic way of life. It would be hard to understand the extent of Darwin's influence upon the theoreticians of sociology, if it were not evident that his doctrine itself represents a *sociology of nature*, that Darwin transferred to nature the then prevalent ideal of the English state ... *Laissez faire, laissez aller, la nature va d'elle-même* — was the famous slogan of the time ... Darwin took up the second part of the sentence and wrote his book on the theme that there are no divine laws in nature: *la nature va d'elle-même!*'²¹ For Nordenskiöld too, who seems to follow Rádl, liberalism is the supporting basis of Darwin's doctrine.

On sober reflection, it is quite needless to try to explain Darwin's conception of law in nature by reference to the liberals. The assumption that Darwin directly followed Lyell has not only much more to support it: it also represents an adequate explanation. Here a tradition is continued which goes back to Bacon whose '*Vere scire est per causas scire*' Lyell prefixed as a motto to the third volume of his *Principles*.

¹⁹ Emmanuel Rádl, *Geschichte der biologischen Theorien*, Part II, Leipzig, 1909. Erik Nordenskiöld, *Die Geschichte der Biologie*, German translation by Guido Schneider, Jena, 1926. See also the dissertation by Lieselotte Rieckmann, *Charles Darwin's Abstammungslehre als Ausdruck der englischen Weltanschauung des 19. Jahrhunderts*, Hamburg, 1938.

²⁰ Loc. cit., p. 121.

²¹ Loc. cit., pp. 128-9.

On the other hand Rádl points to an interesting relationship with his remarks on Darwin's idea 'of a *natural economy* in which animals and plants have to be considered as members of a society ... analogous to the citizens of the state'. For a fundamental assumption of the theory of selection is, that evolutionary changes in species originate in individuals. The *tertium comparationis* would lie, therefore, in paying express regard to the differing positions of the individuals within the collective (species). To that extent it is actually possible to say that Darwin introduced a new kind of 'sociology of nature'. Rádl did not argue the novelty of this thesis. But it is rewarding to illuminate it by referring to a quite different conception dating from the epoch preceding Darwin: the conception of Linnaeus. It is rewarding because a retrospect of history is more sure to succeed in showing the conditions that were inimical to the rise of a new theory than it is in positively determining the latter's origin.

Linnaeus's Conception of Nature

Linnaeus shows in a splendid picture how all life in nature is woven into a wonderful whole, a single 'oeconomia'.²² In this great economy all plant and animal species are dependent one upon the other and can exist only in this reciprocal, highly ramified relationship of interdependence. For the spheres of animals among themselves, and of plants, and again the spheres of life of both, overlap; and from this situation there arise the most manifold relations of interdependence, of furtherance, and of complementing. By living its own way of life, each species at the same time contributes towards the perpetuation of the whole; indeed, the ties are so close that no single species could be taken out without the whole suffering injury.

That Linnaeus had here anticipated the concept of ecology may be noted merely in passing. I must also pass by the wealth of concrete examples which he unfolds before us. We are above all interested in the question of the foundation of this many-runged, all-comprehensive order. Its origin lies with God, the creator of nature. It is for Him the means of sustaining the whole, for He could not realize His ends other than by such institutions. 'Si vero cogitamus tot specierum millia, in una terra simul crescentes, patet, unam facile praevalere, et alteram suppressi et extirpari posse, nisi instituto, finibus Creatoris conveniente, conservarentur.' Thus God prescribed for animals and plants 'subordinationem et quasi politiam'. For 'Politiam vero vocamus justam in republica curam et administrationem'. In virtue of this *politia* every species in the *oeconomia* has specific duties

²² *Oeconomia Naturae quam Praeside D. D. Car. Linnaeo publico examini submittit Isacus J. Biberger, Upsaliae 1749. In Linné, Amoenitates Academicæ ... vol. II, Erlangen, 1787.*

(officia) to fulfil, and it is through this that the whole subsists.²³

The resemblance this picture of living nature bears to the hierarchical social order is difficult to overlook. It is most clearly discernible where Linnaeus couples the idea of the 'duties' of living things with the idea of the hierarchy, thus apparently tracing a class structure in the plant world. The mosses are there the poorest (rustici). They have to make do with the least fertile earth to make it habitable for other plants. The grasses, covering the earth in wide tracts, resemble the many tillers of the soil (coloni). The place of the nobility is occupied by the herbs with their magnificent blooms, their colour, and their fragrance (velut Nobiles considerari possunt). Finally, the trees bear likeness to the princes (Magnatum instar habendae ...). Deeply rooted in the earth, they raise their heads high above the lower plant world, protect it from the inclemencies of the weather, and provide nourishment with their fallen leaves.²⁴

It is sufficiently obvious that Linnaeus introduced this picture as an allegory; yet there is no doubt that it was to a certain degree intended as an objective description. And if we bear in mind the basic idea, according to which the order in nature is one created after a plan,²⁵ the assumption of an all-pervading unity appears only a logical consequence.

Comparing now this 'sociology of nature' with Darwin's conception, and recalling our initial question, the following emerges as the main distinction. Quite unlike Darwin, Linnaeus regards the life of animals and plants from the point of view of the special duties which fall to the particular group. The species is, as it were, a 'class', and this, not the individual representatives of it, is what interests Linnaeus. No regard is paid to the life of the individual as such — which is but logical if it is presupposed that the individual is significant only in so far as the group to which it belongs is significant.

It is obvious that this conception would have been most ill adapted to the ideas of a liberal society. Darwin's view, on the other hand, harmonizes well with such ideas in respect of the aspect discussed. The focus on the individual in his particular situation justifies us to some extent in assuming a connection between Darwinism and liberalism, as was done by Rádl and Nordenskiöld. How such a connection is to be interpreted remains, nevertheless, an entirely open question. The assertion, for example, that Darwin transposed the ideal image of the English state to nature has no

²³ *Politia Naturae quam ... proposuit* H Chr. Wilcke. Upsaliae 1760. *Amoenitates*, vol. VI, Erlangen, 1789. Quotations on pp. 19 and 20.

²⁴ *Politia Naturae*, p. 20.

²⁵ For Linnaeus's conception of nature cf. also Th. Ballauff, *Die Wissenschaft vom Leben. Eine Geschichte der Biologie*, vol. I, Freiburg and Munich, 1954.

clear meaning. And to assume that liberalism deposed the traditional conception of species in biology would be absurd.

Explanatory Model and Knowledge

I have already touched upon the question concerning the relationship of the content of knowledge to the model. Following Nicolai Hartmann, we showed that knowledge has emancipated itself completely from the model by the time it reaches its goal. Indeed, the degree of independence reached at any time is for knowledge a measure of value. The sociomorphic conception in Linnaeus is so intimately fused with the object that the allegorical nature of the description is frankly acknowledged. Natural order, it is true, is known — but very incompletely and only in certain individual relations. Darwin's principle of selection, on the other hand, has made itself entirely independent of the models from which it originated. It stands there all by itself and is in itself so clear that N. Hartmann is able to speak of a *a priori* insight. Thus the model is 'imposed' upon nature, as it is often said, only in the initial stages of the process of knowledge. In contrast with this there begins a reverse process of detachment. It results from the discordances between the model and the context of reality to which the model refers. These discordances give rise to the attempt to find, on the side of the still unknown reality, data to which it is possible to join the individual features of the reality which are already temporarily comprehended under the picture of the model. In the measure that this attempt is successful, guidance by the context of reality assumes direction of the process — until finally the model is left behind without importance.

Now if model and knowledge do not correspond in content, and that which may be common to both is not a constitutive element of what is known, then it follows from this incongruity that the model has more to do with the question than with the answer. If these are not kept far enough apart, that which is known appears in a false light. As, for instance, when Nietzsche says: 'About the whole of English Darwinism there floats something like the stuffy air of English overpopulation, like the lower class smell of poverty and crampedness.'²⁶ 'The total aspect of life ...', however, is in truth 'not the state of misery, of want, but rather the wealth, the luxury, even the absurd wastage — where man fights, fights for *power* ... Malthus should not be confused with nature'.²⁷

I will disregard the fact that Darwinism as a scientific doctrine

²⁶ *Die Fröhliche Wissenschaft*, 92.

²⁷ *Streifzüge eines Unzeitgemässen*, 1.

does not provide a 'total aspect of life' at all, but only represents a theory of the transformation of species. Does Nietzsche's remark still make sense after this qualification? Certainly it is not senseless, but it refers to the objective content of the doctrine not from the viewpoint of its objective significance, but from the viewpoint of its limitation. This limitation lies in the fact that Darwin naturally surveys the wide field of facts considered by him only from certain points of view. They are largely those which prevailed when the theory was first established — how otherwise could he have tested the latter? There results of necessity a peculiar thematization of the problem of evolution, which, viewed from without, could give rise to the impression which evoked Nietzsche's displeasure. Regarded methodologically, however, this is merely a case of a thematical setting of limits, which as such is inherent in the draft of every theory.

If knowledge strives to emancipate itself with regard to content from the model, then it may be asked what conditions a model must fulfil in order to be used in a particular case. This question I must leave undecided and I confine myself to a few remarks. One can approach a set of problems, of course, from very different angles. Likewise there may be very different models at the beginning of an investigation, and subsequently quite different thematizations of the set of problems will result. Even Kant, for instance, had the notion of a genealogical relationship between all living organisms which emerged as a remote conjecture. He has the image of 'a common first mother' from which the great 'family of creatures' has sprung [Myspacing. H. M. P.] — 'for it is thus that they must be imagined if the general, coherent relationship mentioned is to have a foundation'.²⁸ The notion did not, of course, go beyond the mere 'assumption of a real relationship'. Having envisaged a hypothesis of descent, which Kant himself calls a 'hazardous adventure of reason', he soon relinquished the problem again. But it is evident that had a better empirical basis enabled him to carry his theme through, his viewpoints would have led to a quite different theoretical general conception from the one we find for instance with Darwin.

What is perhaps more interesting than such a case is the fact that different model concepts can lead to like solutions. To demonstrate this we can keep to the history of the theory of selection. It has often been related that Darwin and A. R. Wallace (1823-1913) established this theory independently of each other and almost at the same time. In 1858 Darwin published for the first time a brief outline of his ideas, and in the same number of the journal of the 'Linnaean Society' appeared the paper by Wallace, the contents of

²⁸ *Kritik der Urteilskraft*, edited by K. Vorländer, Hamburg, 1954, p. 286.

which corresponded in the main to Darwin's ideas.²⁹ Wallace had submitted the paper to Darwin for his opinion without realizing that the recipient had reached similar conclusions to his own.

Like Darwin, Wallace too had first conceived the idea of transmutation (1855). In searching for a causal explanation of evolution, he too was aided by Malthus. Hence the discovery of the same solution. For Wallace also 'the life of wild animals' is 'a struggle for existence'. Since more individuals are propagated than can be supported, the majority are bound to perish before having perpetuated themselves. If a variety chances to have a slight advantage, however small, it will survive in large numbers and, in certain circumstances, replace the ancestral form. If environmental conditions change, other varieties may gain a greater chance of survival. In this manner species are continuously changing.

Interestingly enough Wallace omits domestic animals altogether from his theory. He holds them to be artificial products which are capable of surviving only under man's protection and which shed no light on the process of the formation of species in nature. Consequently, the analogy of breeding practice, which played such a great role with Darwin, is missing completely in Wallace! Personal reasons probably accounted for Darwin's use of the technomorphic model; it was not required by the subject-matter. In keeping with the different approach there is in Wallace's paper no mention of a term like 'selection'. It is simply stated that the fittest 'survive', etc.

Strictly speaking, of course, this case only demonstrates that the model of 'artificial selection' can be dispensed with. The question then arises whether the sociomorphic auxiliary concepts would not also have been dispensable. And here we face again the question from which this section started out. At this point the methodological and the purely historical investigation part ways. The latter describes the origin of the theory in its historical context, of which the sociomorphic model appears an integral constituent. Whether the theory could also have been conceived in another manner is a question which, regarded historically, is meaningless and which is unanswerable from the methodological standpoint.

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When the doctrine of a scientist displays features coinciding with certain characteristic traits in the social situation of the epoch, it is inevitable that his work should affect the age deeply. For men now jump to the conclusion that they are perceiving this very situation against the background of immutable natural laws. This belief is probably one of the main reasons for the unprecedented response

²⁹ Cf. new edition by de Beer, loc. cit., p. 7.

Darwin's theory evoked even outside its own special territory. It is easy to show that this belief was based on gross misconceptions. But since the real essence of the sociomorphic model becomes all the more clearly apparent in the misconception, we may conclude by briefly examining it from this point of view.

While in critical research models are of interest only in respect of their function in explaining the complex of problems under review, the interest of the public at large is, on the contrary, directed towards the model *per se*. Out of touch with the complex and difficult material of science and not accustomed to its methods, the public keeps to the analogy. This is much more easily accessible than the context of reality at which the model is directed, and the image is taken for the thing itself. The differences between the objective statements of the doctrine and the images used as guides in the painstaking research that led to these statements are submerged again in commonplace equalizations. In the case of Darwinism even scholars of the first rank have partaken in such confusions.

Although Darwin, who always proceeded by cautiously weighing up and who was completely absorbed by the problems of his subject, kept aloof from any application of his theory outside his own subject, his example was ignored by many. It was soon said that religion had been refuted by Darwin, and an ethical, a social and a political Darwinism were propagated.³⁰ The absurdity of transposing the theory in this way is made patent by the fact that the ideologists who made such use of Darwin belonged to opposing camps, to the liberal as much as the socialist. Actually the doctrine can be interpreted this way or that, according to the point at which one starts. For Ernst Haeckel, for instance, Darwinism was 'anything else but socialist! If to this English theory', he writes, 'a particular political tendency is to be assigned ... then this tendency can only be aristocratic, by no means democratic, and least of all socialistic. The theory of selection teaches that in the life of man, as in the life of animals and plants, at all places and times only a small privileged minority can exist and thrive, while the great majority live in want and more or less prematurely come to a miserable end ...'³¹

Much of what circulated at the time in the way of caricatures of Darwinian thought was innocuous gossip. Some of it assumed threatening forms which it will not be out of place to recall. In 1900 Haeckel together with others offered a prize for the best essay on the following question: 'What can we learn from the principles of the

³⁰ Cf. Oscar Hertwig, *Zur Abwehr des ethischen, des sozialen, des politischen Darwinismus*, 2nd ed., Jena, 1921.

³¹ Ernst Haeckel, *Freie Wissenschaft und freie Lehre*, Stuttgart, 1878, p. 73.

theory of descent for the internal political development and legislation of states?' The winner of the first prize among the sixty candidates, Schallmeyer, demanded the application of natural selection to cure all infirmities in the body of human society. His conclusions were stated as follows: 'All cultural achievements, all social institutions, the sexual order—including the family order—created by custom and law, ownership relations and the economic system, the political organization, the religious institutions, the prevailing views on good and evil or good and bad, the width and depth of moral education, the state of the sciences and the measure of their popularity, the evolution of technology, the administration of justice, etc., must be considered from the point of view of the struggle for existence of tribes, peoples, and states.'²²

In such a way the principle of selection—discovered as a principle of nature through the medium of a creative mind utilizing sociomorphic motives—returned to society as, so to speak, a guiding principle for human behaviour directly prescribed by nature—a truly classical vicious circle.

(Translated from the German)

²² Wilhelm Schallmeyer, *Vererbung und Auslese im Lebenslauf der Völker. Eine staatswissenschaftliche Studie auf Grund der neueren Biologie*, Jena, 1903 (1st ed.), p. 214. On the 'need of honour' (Ehrbedürfnis), for instance, he says on p. 84: 'This need of honour, based in the cerebral organ, belonging to the social nature of man, and without doubt fixed in the germ plasma by selection, is ... the organic foundation of our morality.'

THE ORIGINS OF THE CONTRACT

BY ARNOLD GYSIN

I

THE greatly expanded insights afforded by prehistoric research and the method, introduced in recent decades, of combining ethnological with archaeological criteria, have made it possible to trace the origins of agreement by contract much farther back than was the case a short while ago. Thus it has become apparent that the now largely refuted assumptions of the evolutionistic ideology of progress had created a distorted picture of the contract's antiquity. Just as from the premise that in evolution what comes later is better and more perfect, it had been deduced that the oldest order of family relations was one of promiscuity, out of which there had evolved step by step the group marriage, polygamy, and as the final capstone, monogamy — it was also concluded that the 'homogeneous' communities of the earliest times, i.e. the 'hord', 'group', or 'tribe' could not be credited with any sort of original division of labour, or with the existence of contracts. And with regard to relations *between* groups, the thesis of evolutionary progress — into which, by the way, the conception of 'savage' peoples fitted admirably — could only imply that the sole guiding 'principles' for intercourse between groups were hostility, war, cannibalism, force, and subjugation — the exception being when a tribe had split into 'halves' between which it was then possible to recognize peaceful relations. Today it is known that the oldest surviving cultures, the predatory tribes,¹ which ethnological and pre-historical research have covered with particular thoroughness, already displayed a natural, not rigidly maintained, division of labour. The men of these pre-tribal groups hunt; the women gather vegetables or small animal food, erect dwellings which can easily be dismantled, look after the children, and prepare the food. These structurally most ancient human groups are almost entirely devoid of magical or animistic fears. They are in principle monogamous, form small 'local groups' comprising a few individual families and possessing no controlling authority, and invariably marry exogamously members of neighbouring 'local groups'. Territorially these twenty to one hundred strong groups are fairly exactly defined by their mutually respected rove areas, through which they roam from their seasonally changing

¹ Regarding their distribution and the methods used in removing the different layers of soil to recover the remains of primitive civilizations, see the works of Menghin, Schmidt, and Kern listed in the Bibliography at the end. It must suffice here to remark that these were by no means always stunted forms.

dwelling places and which represent the group's collective property. Hunted game is recognized as individual property, so occasionally are fruit trees and simple portable objects, e.g. tools and weapons, which are carried with the person or in boats. Women and children, too, are recognized as being vested with ownership rights. There are precise rules governing the acquisition of property, e.g. by individual marking of the weapon used to kill the game. Further — and this we shall examine more closely — the contract is known both internally, i.e. between members of the same groups, and externally, i.e. between members of different groups, as a method of practical agreement. Under the impact of these facts, even Communist theory has virtually abandoned the old dogma according to which the original society was communistic.

Perhaps even more important than these now more or less generally held views is the decisive change which has come about in the estimation of both the absolute antiquity of humanity and the temporal relations between humanity's stages of civilization. The oldest fossil remains of definite human origin now go back at least 500,000 to 600,000 years (some authorities accord them a considerably greater antiquity). And the most ancient artifacts are now believed to date from the first inter-glacial period (approximately 540,000-480,000 years ago). For several thousands of centuries human groups did not produce their own food, but lived by hunting and gathering. They remained until about 60,000 years ago, at least in Western Europe, universally at the predatory stage. Finally, in the late palaeolithic period they reached the surprisingly rich stage of civilization of the advanced hunting communities, as is evidenced by the numerous cave and cliff paintings in western Europe. Probably it was only after the last ice age, that is *after* 8000 B.C., certainly not very much earlier, that human groups went over to *production* of food for the first time. The gathering of plants by women, particularly searching by digging with sticks, was developed into planting (digging-stick and hoe culture) and into the matriarchate, with at first very little settlement owing to the exhaustion of the soil. And from the hunting activity of the men there developed, at least in part, the patriarchal community of nomad cattle breeders and herdsmen, later to be significant in the formation of the state; this is still particularly to be found among the reindeer nomads. Through the combination of cattle-rearing and planting real *farmers* developed who at first settled down in river valleys enriched by alluvial land, but did not begin tilling with the plough until after the emergence of advanced cultures.²

² The first excavations of a peasant civilization date from 5000 B.C. There is something to be said for the view that certain domestic animals, for example the pig, were first reared in planters' settlements.

Thus the 'history' of humanity, in purely temporal terms, was almost exclusively the 'non-historical' existence of free hunting peoples invariably of modest size. They existed temporally for the main part at a stage that can be most readily compared with the predatory tribes frequently described by ethnologists. It is true that much mixing with and borrowing from cultural elements of the stone-age art of tool-making can be observed. Nowhere, however, does there exist anything to confirm or even suggest a genuine class 'stratification'. Hunter can drive out or destroy hunter. (This appears at least in our parts to have happened to the Neandertalers at the hands of the advanced hunters of the Crô-Magnon race, who advanced in various waves during the last ice age.) But what benefit could the hunter have derived from the systematic and continual subjugation of his own kind? And how could ice-age big-game hunters, who were mobile and who caught with their relatively primitive weapons mammoth, cave-bear, wild horse, bison and wolf, have been subjugated by their own kind? From the original form of the pure gathering and hunting economy those groups had first of all to emerge who *grew* their own food, groups who could, therefore, hardly escape and thus represented a rewarding object of subjugation. The process is long, manifold and intricate. However, simplifying matters, we can state that pure hunting peoples appeared only by way of exception as builders of states. This happened in the late advanced cultures of ancient America where these peoples did not possess wheel, cart or plough and thus represented a special case deviating markedly from traditional conceptions. In the Old World the impulse was provided by nomad cattle raisers, particularly by the warrior herdsmen of Central Asian origin who were absent from ancient America. These had already assimilated slaves of ethnically divergent stock, and in their great mobile organizations they had anticipated essential elements in the formation of the state. Formation of the state, class stratification, the development of writing, and hence the beginning of genuine 'history' are all notions that must be regarded as belonging together, not without exception nor schematically, but in the sense of a decisive happening. In the Old World the strong rationalism of the herdsmen was everywhere transferred to these higher cultures. Priority is today accorded to the creation of the Mesopotamian-Sumerian state. However, the first genuine territorial state may have arisen in Egypt, the higher cultures in India and China appearing somewhat later. In both Mesopotamia and Egypt common measures to organize irrigation projects, which went far beyond the town limits and which possibly existed in a co-operative-like, federated form, are considered to be the pre-

decessors of later kinds of centralization. (The biblical flood may well have been a particularly devastating catastrophe resulting from some such pre-state irrigation project.) However that may be, the actual formation of the state, i.e. the differentiation within the community of an administrative hierarchy which gives orders, can nowhere be older than 6000 years. In other words, the period of time occupied by history proper is infinitesimal compared with that covered by pre-history or primeval history. On the other hand, developments in culture and civilization precipitated by the formation of the state are incomparably rapid and far-reaching. It is of interest to note that the primary function of writing was not a religious or literary one, but the recording of economic data within the domain of temple economy. The earliest written documents already provide evidence of a comprehensive division of labour into such trades as baker, miller, butcher, brewer, tailor, cobbler, weaver, potter, mason, joiner, smith, ship-builder and jeweller. And the most ancient *contractual* documents in Mesopotamia provide us with a whole arsenal of contract types, e.g. contracts relating to sales, loans, leases, rent, commission, bail, contracts of deposit and transportation. The contracts were written down on a tablet with the signatures of both parties and of witnesses and were enclosed in an envelope of clay on which was indicated in cuneiform the content and nature of the transaction. In this form the contracts were then placed in archives. Evidence of marriage contracts has also been found, at least in the cases of Babylonia and Assyria.

II

Nevertheless, it would be mistaken to try to discover the origins of the contract by examining such highly developed later-day forms, which it must be assumed were in some way already developed at the time the state emerged. Nor would the study of prehistoric trade offer a good point of departure. For there is nothing which could lead us to suppose that man in ancient civilizations thinks at all commercially and that the origins of the contract are therefore to be sought in trade. This is very clearly demonstrated by the basic cultures of predatory communities. Outside of the small family, which has not yet grown into any kind of 'system', and apart from quite primitive beginnings of a penal law (e.g. lynching of the habitual thief), these people recognize no authoritative power, at the best only umpires. It is for this very reason that they are dependent upon constant agreement. People at this stage have implanted in them from earliest youth uniform rules of correct behaviour, and these are usually inculcated upon the youth once more prior to their initiation

ceremony, not infrequently in the form of wise sayings. This order is the generally well-functioning foundation of communal life. On the other hand, the assumption that the homogeneous character of such communities renders contracts superfluous turns out to be a figment. For in the first place it is generally attested that primitive man possesses an inclination, which to some extent we find strange, to give and accept *gifts*. This practice is not prompted by mercenary considerations; it is rather a token of friendship and of reciprocity and equality among one's own kind, which are felt to be fundamental. Here or there it is actually customary to offer gifts on returning from hunting and gathering expeditions (as with the Semang); but as a rule the gifts are gifts of friendship and hospitality. This practice contains the elements of barter, which arose later; for guests bringing things that are wanted are more welcome and are given preference, while the giving of things not required is even considered malicious — although the 'theory' of these peoples expressly forbids too obvious speculation regarding the return gift. More obviously economic in origin is the generally honoured precept of *helping out*. For in hunting and gathering communities fortune can be fickle to the individual and his family (who consume jointly). The theoretical homogeneity of a predatory economy is of small benefit to the man who chances to return empty handed and meets his fellows laden with spoils; and this is the more so since at this stage there is as yet no storing of reserves. In boat-building the situation is similar. Since a boat is intended for a single family — the woman paddling, the man hunting, even when the family is on the move — its builder depends on aid from outside his family. Thus there exists even at this primitive stage a kind of loan of services, which can be reciprocated by return services, by loaning the finished boat, or by handing over game. Artifacts are also loaned, the loaner receiving part of the game killed with the weapon loaned. The first beginnings of specialization in the manufacture of weapons and tools can also be seen. However, with the form of economy in question this can result in only moderate differences in property because predatory tribes must (at intervals of one to several weeks) continually carry their entire property to the next point of stop, or transport it there by skin boat or dugout. We must imagine the practical observance of these contractual agreements within the group as being in character somewhat like our social convention; since every member knows everyone else, one is careful to avoid gaining the reputation of an unreliable partner who disregards the rules of etiquette. For the rest, however, these predatory tribes are not given to long-term agreements or to exaggerated promptness in fulfilling what is agreed upon. They think highly of

the principle of loyalty, but admit as a matter of course exceptions resulting from circumstances, regarding it as altogether improper even to remind a partner about the fulfilment of a promise. Nevertheless, the contract in the sense described here is an essential element of their simple, but probably not at all unhappy life. A claim derivable from the contract and capable of being included as an asset among one's effects is unknown to these people; indeed they could probably not have grasped the significance of such a notion.

Quite as important as the function of the contract within the group is its role inside the framework of primitive local exogamy. In the field of family law there do not yet exist any artificially fixed forms either. A strong sense of equality, the modicum of property, the heavy and prolonged demands of child-raising unique to man make monogamy the obvious 'rule', from which, however, there are just as obvious exceptions. Marrying out of the group into a neighbouring local group is prevalent everywhere, it being usually the woman who goes over to the man's group, although occasionally the opposite happens, for example, when the woman's family has no son. But it is not possible at this stage to speak, as yet, of a patriarchal or matriarchal family system. And quite contrary to earlier romantic views concerning the origin of marriage, there exist in these primitive forms no traces of women being carried off by force; such a 'system' would indeed have been contrary to the preservation of mankind in view of the small size of the population during thousands of centuries, which still persists to some degree in these primitive forms of community. Evidence points to there having existed a very high degree of freedom in the selection of mates even on the part of the female partner, whom the man has occasionally to pay off by working for his parents-in-law. Hence there is no real exchange of women, particularly since the group is not yet consolidated and thus does not 'control' the individual as it does at a later stage. Yet the procedure found in this primitive exogamy — described without exception as being entirely unceremonious — readily fits into the conception of reciprocity and 'retribution' which runs through all primitive cultures. A reciprocal right is expected from neighbouring local groups, e.g. acceptance and not rejection of a corresponding courtship of a woman. And this whole system of local exogamy, which is quasi-contractual in nature, now serves in an eminent degree to consolidate the lasting agreement between local groups. Almost the only kind of fighting at this stage takes place between rival individual suitors, and by no means between the groups practising exogamy. The practical result of this as yet loose system is that in principle *any* member of a local group can marry a member of a neighbouring group although

there usually exists a blood relationship between the former and the latter. And since the predominant patrilocality makes it possible for the daughters of a mother who has married from group A into group B to marry again into group A, these daughters can marry the son of their mother's brother (or the latter himself) who has remained in group A. In fact, *this* kind of marriage — being the most obvious — appears as the classical realization of the reciprocity described above. Through it the gap left in *that* family whose daughter marries into another group is filled up again by the *latter's* daughters. The feminine offspring of a daughter given away by the family returns when she has grown up to the original family by marrying there a son of a maternal uncle. This reciprocity is continued at a later stage in consolidated forms by a continual exchange of women between groups specially formed for this purpose. In this practice an explanation is seen for the fact that throughout the world there is found an ancient preference for marriage between cousins, who are the children of brother and sister (cross-cousins), whereas marriage between the son and daughter of two brothers or of two sisters occurs much less frequently and is often prohibited as incest.

III

Accurate information on the later development is less readily available. Ethnology is here confronted with much more complicated data since we are dealing not with groups that have remained in relative isolation but with manifold conditions of contact-overlapping and -stratification. The investigation of the different strata is more difficult. On the other hand, the prehistoric evidence relating to this stage speaks a much clearer language. The numerous cave and rock paintings of South-West Europe, engravings on tools, and surviving statuettes indicate that there existed in the late palaeolithic period, i.e. from about 60,000 years ago up to the last melting of the glaciers, highly organized hunters, who, thanks to the especially great abundance of game, had reached a stage never encountered in historical times among more recent hunting peoples. It is certain that these late palaeolithic hunters achieved the level of the genuine tribe and organized hunting on a large scale. Houses dating from this time have been discovered up to 40 metres in length and with numerous fire-places, which suggests that families formed separate living and economic units. The artistry of the tools and paintings implies a high degree of specialization in craftsmanship, and some even claim to have discovered here various schools. The cultic significance of cave paintings is evident from the fact that representations of animals are often encountered hundreds of metres from the cave's

entrance, where they can usually only be seen by artificial light and reached with great difficulty. Further, palaeolithic artists repeatedly painted new animal pictures in superimposed layers, thus revealing that the purpose of their masterful efforts, which is today not easy to understand, cannot have been primarily an aesthetic one. The most convincing interpretation, and the one today most often proffered, is that of a hunting charm: the killing and charming of the depicted animals, which, to judge by marks present on them, must have been shot at. Similar practices have been observed even in recent times, e.g. among bushmen, who in many respects — one has only to recall their rock paintings and engravings — appear to be a sunken branch of the late palaeolithic hunting cultures. A further indication of magic in the late palaeolithic age is that magicians themselves are repeatedly depicted in the caves. And the fact that these are shown dancing while wearing animal masks suggests that those hunters were already pervaded by the ideas of totemism.

The late palaeolithic culture can best be compared with that of the advanced hunters³ described by ethnology, in which totemism frequently appears. These recent forms, however, have either reverted to a lower stage or they have never reached the late palaeolithic peak of the hunting cultures. That the totemistic elements have had a confirming influence is shown by their diffusion in the planting civilizations and their well-known penetration of advanced cultures.

In reality the validity of what has yet to be said regarding the fate of contract-like methods in the phases following on the stage of the predatory tribes no longer depends on the controversy concerning the antiquity of totemism. May this be of late palaeolithic or more recent origin, there is general agreement that no reason exists to assume at some later date a break in the chain of exogamy such as was already practised in primitive culture. On the contrary, it is generally assumed that a successive consolidation of these practices took place, which latest at the tribal stage must have contributed to the formation of the sept or at least contributed in a decisive way to its development and significance. Thus the only divergence in views regarding totemism is this: it is either believed that the furthest developed artificial forms of the age-old practice of social reciprocity were achieved early, i.e. in the late palaeolithic age, or it is assumed that this happened only after the ice age. It is neither possible nor essential to demonstrate a chronologically continuous line. We shall confine ourselves to trying to describe the most important methods used by peoples (including producing tribes) which

³ For the extent of the areas where advanced hunters exist today see K. J. Narr, *Das höhere Jägertum: Jüngere Jagd- und Sammel-stufe*, Historia Mundi, vol. I, 1952, p. 502 et seq.

have reached higher stages but are not yet at the level of the state. And here totemism will appear as a particularly clear example.

One thing is certain: exogamy merged over a very wide area into the various forms of the *exchange of women*. The buying of women, on the other hand, is a relatively late institution presupposing fairly extreme conditions of domination and class, a decline in the social status of women, and the creation of bearers of economic value, all of which, however, are also encountered among apparently primitive peoples, e.g. over wide areas of Africa,⁴ where migrations of cattle-raisers in the remote past had superimposed different stratas. Occasionally, the mere bringing of wedding gifts, which often concluded the marriage, has been confused with a purchase, just as the customary and decorous resistance of the bride has been mistaken as a sign of 'predatory marriage'.

The exchange of women may at first take place in the form of local exogamy. It is still practised among numerous advanced hunters, who continue as before to respect each other's hunting territories. At all events, permanent relationships arise, and these must almost everywhere have preceded the formation of large territorial associations. They are the most effective instrument of social integration between groups which have not yet reached the stage of the state and which lack a common authority or even the economic basis necessary for the organization of co-operation such as the tending of large herds or the operation of an irrigation system. The exchange of women thus becomes a social 'key-figure'. It is a more exact manifestation of that principle of reciprocity and requital which is potent at the earliest stage and which dominates all primitive peoples. And 'all other relations based on exchange ... can take as their norm the relation thus arising', 'exchange being not primarily an economic category but a mutual understanding that is produced by reciprocal action, as is language' (Gehlen).

As soon as their conceptions of family law have become established, communities form artificially simplified systems for applying this reciprocity; they do this in order to cope with the problem of kinship and fix the limits of groups between which the relationship of exogamy is to subsist. If kinship relations were bilateral, as is common with us today, the confined situation would cause practically everybody to be related with everybody else, and the segregation on which exogamy is based would be impossible. Hence man of the pre-state era artificially simplified lineage. He instituted almost everywhere unilinear kinship and simply disregarded the other lines.

⁴ Concerning the extent of the buying of women in Africa see A. H. Post, *Afrikanische Jurisprudenz*, 1887, vol. I, p. 329 et seq.

As an investigation showed, of 250 'primitive' communities' 175 turned out to be of unilinear construction.

This can be effected most simply in the case of local exogamy. As the forms become established, a decision is made regarding the choice between patrilocality and matrilocality. If the daughters *consistently* enter the local group of the husbands, the unilateral lines become clear there by the fact that the sons always remain in the group while the daughters are exchanged with other local groups. With a matrilocality, on the other hand, a residential unit of daughters is formed, and the sons of the other local group have a reciprocal claim, i.e. the right to marry into the said residential unit. The lineage is followed only at the place of residence: in the former case, along the paternal line; in the latter case, along the maternal one.

The situation becomes more complicated when the groups between which exchanges take place are not locally separate but belong to the same local association, e.g. as 'halves', 'marriage classes', or septs of one and the same tribe. With regard to such, obviously much more difficult, unilinear relations of reciprocity, totemism has played an eminent sociological role. The totemic animal becomes the visible symbol of the separate groups. For example, when within a tribe, in tracing the unilateral paternal lines, all those members descended from the wolf are consistently assigned to this animal and named after it, it is possible to distinguish these members from those assigned to the bear almost as readily as one can differentiate between these two animal species themselves, which, of course, also intermingle locally. Hence the totem group 'wolf' can stand in a clear, reciprocal relation of exogamy with the totem group 'bear', although there no longer exist here any local distinguishing marks. Thus totemism conduces to 'the self-identification of a unilinear non-localized group whose members do not settle together' (or more precisely: whose members are not clearly discernable, through exclusive living together, from other exogamic secondary groups). It is 'probable, considering the indubitably low development of rationality in prehistoric times, that life-long membership in a non-localized group with a real or fictional common descent was possible only with the aid of such concrete supports for identity as were presented by totemism' (Gehlen). The world of ideas surrounding magic, totemism, and the tabuing of whole groups of animals arose secondarily from the religion of primitive cultures, which is simpler and closer to us and is therefore connected in some way with the basic social functions of an exogamy that gradually has become an 'artificial form'. A new light is also shed upon many other institutions that appear strange regarded in isolation when they are seen from the

viewpoint of the conventions of reciprocity. Thus the so-called group marriage (two brothers from the one exogamous group marry jointly two sisters from the other), the levirate (the brother of a dead man has to marry the latter's widow), and the sororate (the husband takes the wife's sister after or even before the former's death) can be explained, to a large extent at least, by the ideas of reciprocity. What is certain, however, is that these ideas gave rise to the widespread duty and right of marrying the 'nearest' woman from the other exogamous group, in particular the cross-cousin, i.e. the woman who can most clearly replace the woman who had been given away by the first group or family.

The exchange of women, however, even when it has become the most important means of contractual agreement and peaceful understanding, implies the introduction of a certain *collective control* over the partners to the marriage, which contrasts markedly with the freedom of primitive culture. The families involved or even the septs now negotiate with each other, women often appearing as representatives of their groups. This collective control accords with the increased needs of co-operation at the stage of advanced hunting and with a certain preponderance of the man with his strongly developed economic activity over the woman, who had remained at the old gathering stage — a preponderance that was retained until women went over to the culture of plants at the end of the ice-age. Nevertheless, one may believe the reports according to which there was nearly always concealed behind the collective action a prior agreement between the parties concerned, to whom in most primitive peoples the right is accorded of proposing the other partner (Günther). There is the greatest variety of forms imaginable, the description of which, however, has no place here. It will suffice to point out that the so-called gerontocracy is a world-wide phenomenon. A variety of reciprocity is here practised where the young men have first to take elderly widows, while awaiting their turn to marry a young woman after or even prior to the widow's death. This has been termed successive polygamy as against classical polygamy, which appeared for the first time as a late function of the enormous differences in property ownership in the patriarchal tribes of herdsmen and in the authoritarian organizations of the ancient states created by them. In all this, however, the wedding remained for a long time largely unceremonious.

The result of our considerations in chapter III may be summarized as follows. At the stage following the primitive cultures — expressed in terms of pre-history: from the late palaeolithic age onwards — wide-spread schematizations of a contract-like permanent

relationship were formed in the external intercourse of human associations. These relationships became fundamental to the integration of larger associations. And they must have paved the way for the later exchange of commodities.

IV

Thus, although the origin of the contract is not to be sought in trade, it is none the less interesting to consider the origins of the latter too. 'Many finds dating from the old and late palaeolithic periods provide evidence of a widespread trade by barter between distant places, the objects of exchange being principally materials used in the production of ornaments: amber, flint, mussels, etc.' (König). As far as the old palaeolithic period is concerned, this is open to doubt. However, among primitive nature-peoples living completely isolated in inaccessible interior regions, such objects as mussel-shells are still found as measures of value, and since traders as a class do not exist, these objects can only have arrived there by passing from tribe to tribe through a chain of barter. Late palaeolithic excavations have also revealed in interior regions sea-shells worked into ornaments, which served the strong need of these hunting tribes for personal adornment, a need of which other evidence exists too. The same applies to finds of amber objects. The manufacture of stone implements in particular was dependent on the possibility of obtaining the principal raw material, flint, which could be found by no means everywhere. Nor do we have any reason for assuming that the highly organized late-palaeolithic hunters, among whom an extensive specialization in crafts already existed, did not make use of the obvious advantages of the exchange of commodities. In the post-glacial period the evidence is even more abundant. Soon after the differentiation of tribes into hunters, planters and cattle breeders, there must have developed a bartering of food-stuffs such as is widely practised today among nature-peoples. Relations of this kind among the peoples of North-West Melanesia have been described in a detailed and vivid way by Malinowski. And studies of seven South Sea peoples made by Margaret Mead show that such bartering even takes place in the domain of cannibalism. Thus the problem of the origins of the contract is by no means bound up with the controversy whether certain prehistoric finds (e.g. the smashed skulls and split bones of *Sinanthropus pekinensis*, who lived in the second ice-age, or Neanderthal finds from the third inter-glacial period) necessitate the assumption of a primitive cannibalism, or whether cannibalism is a later phenomenon of degeneration.

The objection that the frequent absence of a common language

between neighbouring groups makes relations of barter improbable falls to the ground by the widespread observation of 'silent' trade. This is already mentioned by Herodotus: 'The Carcadonians report that there is in Libya a land and people who live beyond the pillars of Hercules. When they visit these people, bringing their merchandise they set it down beyond the waves and light a fire, returning thence to their boats. On perceiving the smoke, the natives go down to the sea-shore, place gold beside the merchandise, and withdraw again. Then the Carcadonians go on land once more to see what has been offered. If they consider that a sufficient quantity of gold has been given for their merchandise, they take the gold and sail hence. But should the value be inadequate, they return to their boats. The natives then come back and add further gold to the previous amount until the traders are satisfied. Neither side does the other side a wrong. For the one side does not touch the gold until it equals the value of the merchandise, and the others do not touch the merchandise until the former have taken the gold.' In the eighteenth century in about the same region a very similar procedure was described, taking place between negroes and natives of Morocco. They met annually at the frontier of Guinea, exchanging gold and ostrich feathers without any form of bargaining. Roman authors tell of silent trade among peoples beyond the Himalayas. And Arabian travellers' reports tell from the fourteenth century onwards of the exchange of furs and skins which traders who proceeded regularly to the northern regions of Russia conducted there with peoples whom they never saw. Numerous further instances have been described by Alexander v. Humboldt among others. They all demonstrate that lasting relations of exchange are possible even between peoples who would not dare to come within close proximity of each other, but between whom there exists an established relationship of trust with regard to their specific reciprocity. The ingenuity displayed in these various arrangements, which were ultimately intended to be a substitute for linguistic intercourse, is not, of course, evidence of the latter's superfluity, but of rather an emergency that made man inventive.

V

The journal *Ratio* continues, in the words of its editors, 'in a new form philosophical aims ... pursued in the *Abhandlungen der Fries'schen Schule*'. Thus, at the conclusion of our examination of the origins of the contract and hence, as it turned out, of the legal rules of a human community (*Rechtsgemeinschaft*), it will not be inappropriate to glance at the starting points from which Fries' and Nelson's philosophy of law set out to comprehend the structure of a community

based on law. They proceeded by abstracting from the moral rules, whose content prescribes equality of each person *per se* or justice, the legal rules which are concerned with 'external' application irrespective of the moral conviction of those to whom they are addressed. From here they arrived at the philosophical conception of a legal situation in a society of rational beings by ascertaining the general conditions that would have to be fulfilled in given circumstances in order that such a law might at all be applied to society as a whole. Nelson went somewhat further in systematization and abstraction in the following formulation: 'In the conception of society as the interaction of rational beings in nature ... we find on the one hand the externals of this interaction: they concern the relations of rational beings with one another. And on the other hand we find therein the conformity of this interaction to the laws of nature, and thus the fortuitousness of their relationship to the norm of justice: this concerns the relation of rational beings to the law' (*System der philosophischen Rechtslehre und Politik*, 1924, p. 60). By relating *externality* and *conformity to the laws of nature* to *knowledge* and *will* in turn, the following scheme emerges:

	Knowledge	Will
Externality of interaction	1	2
Conformity of interaction to laws of nature	3	4

From this were derived the four following 'formulas of subsumption' as the most general natural conditions of a society based on law:

1. The existence of a *language* in order that men may *know* and recognize one another as rational beings and treat one another according to the law.

2. A clearly defined distribution of *possessions* in order that one may be able to *act* rationally oneself and to respect such action on the part of others.

3. A clear decision as to what shall be *accepted as law* in society in order to remove it from the fortuitousness of the individual's knowledge.

4. Institutions ensuring that the *observance* of what has been thus determined is not left to the chance of the individual's good *will*.

The notions of freedom and equality were coupled with the

subsumption formulas 1 and 2, particularly by Fries, who was not yet acquainted with the systematic separation of the formal from the material approach introduced by Nelson (*Politik*, 1848, p. 247). From the subsumption formulas 1 and 2 the inferences (postulates) were then drawn that a *Rechtsgemeinschaft* is only possible when members of the community elevate their language among themselves to a *practical* form, i.e. 'determine their interaction by *contracts*', and when they distribute property among themselves in accordance with the principles of equality of persons *per se* (*Philosophische Rechtslehre*, 1803, p. 47 et seq.). The subsumption formulas 3 and 4 result, to use modern terms, in the postulates of the making of law, the administration of law, and the enforcement of law as the general pre-conditions of a developed law. I consider these starting points, which were meant to be merely a regulative notion and not a presumptuous philosophical construction of a legal order,⁵ to be right in principle and in fact the most satisfactory formulation attempted so far of the essentials of the basic structure of a human community governed by common legal rules. It appears to me a matter of course that the concepts of contract and property should be taken only as *pars pro toto*. I consider it a particular advantage, however, that in the subsumption formulas on 'language' and 'possessions' (which become in the 'postulates' 'contract' and 'property') a *first stage* of 'making possible' a society based on law is singled out as preceding the *second stage* of *consolidating* a society based on law (making, administration, and enforcement of law). Our considerations have perhaps illuminated the deep significance of these two stages from a new angle. The development of apparatuses for making, administering and enforcing law occurred only late in the evolution of mankind after prolonged tentative attempts with the first stage ('contract' and 'property'). And while these original conditions long remained in the minds of metal-age man organized in states as vague recollections of a former paradise, the more recently created formal apparatuses of society have been very frequently abused — only too often under the very pretext of justice — for suppression and violent conquest. The states created in the course of evolution may have come in some respects closer to the notion of a society based on law. But particularly in our times the reversions to methods of violence and suppression have been truly terrifying. In the very places where endeavours to disseminate justice have still the best chance of being sponsored, little attention is being paid to the undermining of humane and just ways of thinking caused by the mass media at the disposal of the modern apparatuses — if worse does not happen,

⁵ Fries, *Rechtslehre*, cf. subtitle and pp. x, xiv, 30; *Politik*, p. 242

namely the systematic attempt ruthlessly to exterminate all natural or traditional conditions in which such ways of thinking could thrive, such as the family, small-scale property ownership, and smaller national communities. On the other hand the call for freedom is often merely a façade behind which the uninhibited accumulation of wealth takes place. This glance at the origins of the contract should at least have shown that man was destined to live in freedom and equality. However, he will scarcely advance towards justice without being integrated into communities in which he is able to take an active part in the development of law, and in which a sense of justice can be instilled into him, in other words, without the preservation and creation of sound family units and free local communities, without freedom to conclude contracts and form associations with others, and without the partition of the leviathan state into component communities of a reasonable size. The idea of justice must be created and borne by the men concerned. Mere apparatuses are but its formal aspect — and unfortunately often a disturbing one. But since these apparatuses developed from incomparably freer and more harmonious beginnings, which lasted much longer, it may be possible for more freedom and equality to re-enter them, perhaps, on a higher level.

(Translated from the German)

For bibliography see p. 115.

THE PROBLEM OF LEGAL LOGIC

BY SPIROS SIMITIS

I

'WE have in England a deep distrust of logical reasoning, and it is for the most part well-founded. Fortunately, our judge-made law has seldom deviated into that path; but on some of the rare occasions when it has done so, the results have been disastrous.'¹ These words are quite explicit, the statement is categorical: logic is a danger to law, logic and law are incompatibles. No less categorical, however, is the opposite opinion, prevailing in legal science: 'logic is nowhere so practical and sensitive as in law; a merchant loses his property in a lawsuit, prison doors close behind a trespasser, and the guillotine cuts off the head of a murderer — by power of definition and the terminus medius'.²

The fact that logicians prefer not to deal with legal matters³ has never hindered lawyers to reflect, again and again, on the meaning and importance of logic in legal reasoning. The discussion about 'legal logic' is a favourite topic of legal philosophy. There have been many attempts at explaining the problem of the relationship between logic and law, from — to mention a few names — M. Fabreguette's logical analysis of judicial thought,⁴ Eugen Ehrlich's⁵ and M. R. Cohen's⁶ basic inquiries into legal logic, Norberto Bobbio's studies on legal analogy,⁷ Brusiin's work on 'legal reasoning',⁸ Garcia Maynez' system of legal logic,⁹ Stone's fundamental reflections on the fallacies of the logical form in legal reasoning,¹⁰ Tammelo's inquiries into the nature of norms,¹¹ G. Husserl's book on transcendental logic,¹² Hans Welzel's plea that logical patterns of the matter be considered,¹³ and Scheuerle's work on logical patterns,¹⁴

¹ Konstam, 60 L.Q.R. (1944) 232.

² A. Trendelenburg, *Naturrecht auf dem Grunde der Ethik*, 2nd ed., 1868, p. 178.

³ Cf. W. Hofacker, 21 ArchRuSPH (1927-28) 22. The most remarkable exception is the work of O. C. Jensen (1957), *The Nature of Legal Argument*. Überweg already treats legal application as a form of syllogistic processes of thought in his *Logik*, 4th ed., p. 319.

⁴ *La logique judiciaire et l'art de juger*, Paris, 1914.

⁵ *Juristische Logik*, 115 (1917) AcP 125.

⁶ *Logic and Law*, 29 Harv. L. R. (1916) 622.

⁷ *L'analogoia nella logica del diritto*, 1938.

⁸ *Über das juristische Denken*, Helsinki, 1951.

⁹ *Introducción a la logica jurídica*, Mexico, 1951.

¹⁰ *The Province and Function of Law*, Cambridge Mass., 1950, especially 147ff.

¹¹ *Untersuchungen zum Wesen der Rechtsnorm*, 1947.

¹² *Recht und Zeit*, 1955, 87ff.

¹³ *Naturrecht und materiale Gerechtigkeit*, 1951, 197f.

¹⁴ *Rechtsanwendung*, 1952.

to the basic research on this general topic by Karl Engisch.¹⁵

It was by no means only the task and privilege of students concerned with problems of legal philosophy to work on 'logic in law'. There exist observations of equal importance in research on concrete legal problems. Conclusions based on analogy and conversion, *argumenta a maiore ad minus*, *a fortiori*, *ad absurdum*, *a simili*, etc., belong to the favourite terminology of legal reasoning.

They seem to confirm Demolombe's words that '... ce n'est qu'au développement logique des conséquences de chaque principe qu'il est possible de demander ... les vérités dont on poursuit le triomphe!'¹⁶ It is, therefore, hardly surprising that the laws of logic as rules governing all reasoning were defined as parts of a supra-positive unwritten law.¹⁷ 'Law was the point where life and logic met.'¹⁸ The violation of the rules of logic thus brings up the question about the reversal of a judgment.¹⁹ With this step, however, the dispute about logic in law leaves the realm of pure theory and enters the region of practice. All doubts about the importance of a discussion on the relationship between logic and law are thereby made pointless.

II

1. Logic is — and we may say as much in spite of all controversies about the definition of logic — the science of laws of (all) correct thinking.²⁰ Considering this, the study of law cannot do without logic, if it wants to satisfy the demands placed on it.²¹ Acknowledgment or non-acknowledgment of legal institutions, use and non-use of norms, form and method of their interpretation seem to be evident applications of 'logical' reasoning. 'Logic' is considered an inherent

¹⁵ *Die Einheit der Rechtsordnung*, 1935; *Logische Studien zur Gesetzesanwendung*, 1943; *Einführung in das juristische Denken*, 2nd ed., 1956; *Die Relativität der Rechtsbegriffe*, in 'Deutsche Landesreferate zum V. Internationalen Kongress für Rechtsvergleichung in Brüssel', 1958, 59ff.; in *Studium generale*, 10 (1957), 173, 12 (1959), 76.

¹⁶ *Cours de Code Napoléon*, vol. I (1869), p. 11.

¹⁷ Cf. BGHSt 6, 70 (72).

¹⁸ Maitland, *Introduction to the Yearbooks of Edward II*, Selden Society Series 1, 411.

¹⁹ Cf. E. Schwinge, *Grundlagen des Revisionsrechts*, 1935, especially pp. 150, 189; Engisch, *Logische Studien*, pp. 113ff.; Rosenberg, *Lehrbuch des Deutschen Zivilprozessrechts*, 6th ed., 1954, p. 661; Schmidt, *Lehrkommentar zur StPO*, vol. 2, 1957, § 337 Anm. 20; Calogero, *La logica del giudice e il suo controllo in Cassazione*, 1937.

The *Cour de cassation*, too, has repeatedly pointed to the necessity of strict observance of the laws of reasoning. The deductions of the courts have to be necessary and correct, cf. Civ. of 29th October, 1952, D.1953, 53, but also of 1st April, 1946, D.1946, 285.

²⁰ We must realize, of course, the deficiencies of such a general definition. In this connection it can and shall mean only the following: logical laws 'deserve to be called "laws of thinking" only ... when what is meant is that they are the most general, which serve to prescribe how one should think wherever any thinking is done at all'. Frege, *Grundgesetze der Arithmetik*, 1893, p. XV.

²¹ Cf. also Fechner, *Rechtsphilosophie*, 1956, p. 194; Cohen 29 Harv. L. R. (1916) 622.

element of law, a *conditio sine qua non* of legal reasoning. The allusion to the 'logical' natures of legal thought has thus become a 'professional convention'.²¹ The word 'logical' is then nothing more than a vague expression, for it is no longer a word that describes a scientific process of reasoning governed by specific rules, but only a circumscription of a feature that is deemed a necessary quality of all legal thinking.²²

The use of the words 'logic' and 'logical' within the study of law becomes, therefore, more and more a classical example of hypostasis. As a hypostatization, however, legal logic is no longer a useful instrument of but a hindrance to legal reasoning. It should be, therefore, the first and foremost duty of legal logic to limit the use of this term to its proper measure by the concretization of its meaning, thereby preventing effectually all misuse.²⁴

Only then shall we know whether the attempt to establish and organize a system of legal logic will prove successful, or whether it will be doomed to failure from the very beginning because it undertook to apply logical standards to an object incompatible with logic. Is it correct, therefore, to agree with the statement of Felix Kaufmann²⁵ that the 'fundaments' of a theory of law are to be found 'only and solely in logic', i.e. 'to suggest that the best law can be achieved without a proper use of logic is simply nonsense',²⁶ or must we prefer that opinion which states that 'into the straight-jacket of formal logic the law can be no more readily forced than can real life itself',²⁷ i.e. that 'logic in the realm of law is useless?'²⁸

2. To answer this question, that is, to define the exact place of law between irrationalism and logicism has been the aim of all writers who have tried to explain and elucidate the meaning and function of legal logic.

(a) For some the term 'logic' points to a way of thinking that is

²¹ Cf. Esser, *Grundsatz und Norm in der richterlichen Fortbildung des Privatrechts*, 1956, p. 234; Vichweg, *Topik und Jurisprudenz*, 1953, p. 56: 'Its development (of a legal system in the logical sense) has never taken place, but its existence is nevertheless usually presupposed in our legal reasoning.' Jensen, *Nature*, 7ff.; Spindel, 69 *ZStrW* (1957) 441f.; Loevinger, *Una introducción a la logica jurídica*, 1954, p. 60.

²² Cf. Haesaert, *Théorie générale du droit*, 1948, pp. 318ff.; Legaz Lacambra, *Filosofía del derecho*, 1954, 448ff.; also the critical remarks of Brusiin, *Juristisches Denken*, 100ff.; Boasson, *Sociological Aspects of Law and International Adjustment*, 1950, 49ff.

²⁴ Cf. Jensen, *Nature*, 7ff.

²⁵ *Logik und Rechtswissenschaft*, 1922, p. 3.

²⁶ Paton, *Jurisprudence*, 2nd ed., p. 154.

²⁷ *Lilbosch v. Edison* (1933), A.C. 449; cf. also Lord Halsbury in *Quinn v. Leatham* (1901) A.C. 495 (506); Lord McMillan, *Law and Other Things*, 1937, pp. 76, 255; F. Pollock, 45 L.Q.R. (1929) 293.

²⁸ J. Binder, *Philosophie des Rechts*, 1925, p. 884; cf. also H. Isay, *Rechtsnorm und Entscheidung*, 1924, especially p. 145.

found especially and only in law.²⁹ Eugen Ehrlich³⁰ has shown the way to a systematic proof for this thesis.

But Ehrlich did not consider it his duty to develop a system of legal logic. 'Legal logic' is in his view the typical result of a definite historical development, which begins with the Roman lawyers and finds its climax in the work of the Pandectists. It is the sum and essence of a number of 'technical guild-rules and regulations'.³¹ The basic requirements are its dependence on the given legal conditions, the idea of the unity of legal order, and the concept of the relation between state and law.³² But this kind of logic can never guarantee the correctness of legal thinking. The only thing it has in common with true logic is the name.³³ '... its task is not to prove something by means of the rules of human reasoning but only to make something appear.'³⁴

In order to avoid the fallacies in legal logic, Ehrlich is of the opinion that one should try to combine the logical argumentation with a valuation of the interests involved in the case to be decided. The core of legal logic has to be crystallized out of the doctrine of the pandectists. Only thus could the way to a correct interpretation of law be found.

Ehrlich's ideas were, above all, a criticism of the traditional way of legal reasoning; in more recent times, however, there has been the trend to work out a system of an autonomous legal logic. An example of this is the 'egological' theory by Carlos Cossio.³⁵ He says that legal logic is the necessary result of the normative character of legal order. It accounts only for the specific demands of legal order because it is a logic of the 'Ought' character of legal norms.³⁶ It can, therefore, be described as the means of finding and substantiating a distinctly legal truth.

²⁹ Cf. Levi, *An Introduction to Legal Reasoning*, 1949, p. 73: 'Legal reasoning has a logic of its own'; Horvath, *Rechtssoziologie*, 1934, 22ff., 187ff.; Calogero, *La Logica*, especially p. 39; Scholz, 33 *ArchRuSPh* (1940) 41, says according to the ideas of the layman 'the artificial language of legal science is the logic of legal science'; Boasson, *Sociological Aspects*, 49ff., holds the opinion that the manifold meaning of the concept of logic in legal science points to an autonomous legal logic.

In this connection we must also mention Kelsen. Law, in his opinion, is allogical. Legal science is the factor that gives law a logic of its own. Cf. especially 3 *ÖstZöfR* (1922) 103ff.; but also Ephrussi, *ibid.* 4 (1924) 132.

³⁰ Cf. especially 115 *AcP* (1917) 125ff.

³¹ 115 *AcP* (1917) 198, 129.

³² 115 *AcP* (1917) 271ff.

³³ 115 *AcP* (1917) 423ff.

³⁴ 115 *AcP* (1917) 198.

³⁵ Cf. especially *Latin American Legal Philosophies*, 1948, 345ff. and *Interpretations of Modern Legal Philosophies*, 1947, 85ff.; *La plenitud del ordenamiento jurídico*, 2nd ed., 1947; 11 *RevIntThD* (1937) 187; 1 *ÖstZöfR* (1948) 337, 466, 5 (1952) 15; 40 *ArchRuSPh* (1952-53) 161; also W. Goldschmidt's 3 *ÖstZöfR* (1950) 186 (190).

³⁶ Cossio, cf. especially 5 *ÖstZöfR* (1952) 20, considers Kelsen's *Theory of Pure Law* the basis of his legal logic. But this was refuted decisively by Kelsen himself, cf. 5 *ÖstZöfR* (1952) 449 (451).

Of course, Cossio himself seems to doubt his statement that legal logic is one of many other logical systems. But he does not arrive at the conclusion that a comparison is necessary between rules of legal logic which, according to his opinion, are special and laws of general logic. The autonomous position of legal logic is deduced only from the singularity of the object examined, namely the legal order.

Such arguments cannot convince us. We do not deny the fact that law is a field with its own specific tasks, problems and special objects. But we cannot agree with the thesis that this must inevitably lead to an incompatibility between the general laws of logic and law. The discipline of logic claims to be the means of coping with all processes of thought in any science. Whether this can be done has to be proved by applying logical categories to legal cases. We can never conclude that law is autonomous from general indications of the peculiar features of law.

This argument is proved to be correct also by the following consideration: the forms of thought with which Cossio and all other advocates of the autonomy of legal logic work, i.e. analogy, consistency, deduction as well as the technique of subsumption, are by no means originally legal categories of reasoning. They lean more or less on the categories of general logic. Whether we can, nevertheless, consider them autonomous, only a comparison with the general laws of logic can show. Only then shall we know whether there is a factual difference in spite of a nominal equality.

(b) The thesis of the autonomy of legal logic is opposed by the other thesis that sees in legal logic only a special form of general logic. By general logic we mean first of all the classical form of logic.³⁷ R. Stammler³⁸ already pointed emphatically to the possibility of transferring the categories of general logic to legal reasoning. This seemed to him the best means of fulfilling the wish for a 'logic' of legal thinking. This meant, indeed, a big step forward. For the consideration of the laws of classical logic opens up the problem for lawyers whether there is any concrete possibility for legal-logical rules of reasoning and does not stop at the abstract remark that there seems to be an immanent logic within legal order. General remarks concerning the normative character of the law do not suffice. A logic of law cannot be just a survey of the form and character of the system of legal order. The structure of legal order in general and of the individual norms in particular may serve as the basis for developing the principles of legal logic. But legal logic should be far more. It

³⁷ The term 'classical' points to the contrast to modern mathematical logic. On the terminology cf. Menne, *Logik und Existenz*, 1954, p. 131f.; Bochenski, *Logik*, 1956, pp. 17, 297; Freytag-Löringhoff, *Logik*, 1956, p. 9.

³⁸ *Theorie der Rechtswissenschaft*, 1911, p. 7f.

should also be a technique of finding law, a way to the proper reification of norms and principles of legal order.³⁹

To achieve this was the purpose of all those writers who have made the attempt to base legal reasoning on the laws of classical logic. The extensive studies by Wilhelm Fuchs⁴⁰ belong to this field, and also the system of legal logic as it was developed by Garcia Maynez.⁴¹

It was Karl Engisch,⁴² however, who in his works gave this trend the most impressive, urgent, and consistent expression. The technique of legal reasoning is subjected to an exact analysis from the point of view of logic. Instead of general statements we find here concrete questions about the importance of rules of logic for subsumption, as well as about the statement of facts, the different legal conclusions, etc. Legal logic now took on shape and form. The problem of its practicability replaces the general research on the possibility of its existence. This was the decisive step in the history of the development of legal logic, the step from theory to practice.

Thus legal logic was taken out of the blind alley of truisms. But legal science is not an obvious field of application for the rules of classical logic. The fact that legal science is forced to observe certain rules of thinking does not mean at all that these processes of thought move in the tracks of classical logic. The question about the way of correct evaluation and application of the law is in no way identical with the question about the relationship between logic and law. The former is an intrasystematic problem of legal science. The latter is a problem about the relationship of two disciplines to one another, a question, therefore, that can only be answered by a comparison of object and purpose of these two disciplines. Only after we have cleared up this problem can we accept or reject a taking over of logical laws. Most adherents of the thesis that legal logic is only applied classical logic avoid this very problem. They think it a matter of course to presuppose the applicability of logical categories to law. Norms and institutions are divided into primary, median, and final theses, conclusions are assigned to logical categories, without any foregoing investigations whether law really is suited for logical reasoning. Most of the authors are only concerned to apply logical theses already accepted as applicable instead of considering first of all the fundamental question of their applicability as such.

³⁹ Cf. also Scheuerle, *Rechtanwendung*, p. 28.

⁴⁰ *Logical Studies in the Field of Legal Science*: vol. I: 'Die Arten der Rechtssätze — Unendlichkeitsprobleme im Recht', 1920; vol. III: 'Die Zukunft der Rechtswissenschaft, Rechtswissenschaft als Gerechtigkeitswissenschaft', 1933; vol. IV: 'Wege und Irrwege juristischen Denkens', 1936; vol. V: 'Neoklassik in der Rechtsphilosophie', 1954.

⁴¹ *Introducción a la logica juridica*, 1951, cf. especially 27ff., 110ff., 147ff., 173ff.; *Lógica del Juicio Juridico*, 1955; 44 *ArchRuSph* (1959) 193ff.

⁴² Cf. footnote 15 (1958) 1, 45.

A successful legal logic presupposes answers to two questions: first of all it has to be investigated whether and to what extent the structure of logical laws corresponds to the specific purposes of law. This question concerns the conditions for and the limits of legal logic. Next it has to be investigated which concrete tasks can be coped with by legal logic. This question concerns the practicability of legal logic. If the first question is neglected, there is the danger that law will be forced into a pattern that may prove to be a hindrance to the fulfilment of its tasks. Neither logic nor legal science would profit from that. If one disregards the second question, there is the danger that we move in the realms of pure theory and abstract speculation. It is more than doubtful, however, that a legal logic which does not overcome the limits of pure theory would be able to exist.

3. The decisive new impulse for legal logic originated neither in the field of legal logic still in the first stages of development nor in legal science as such, but in logic itself. The more it became apparent that mathematical logic established itself within the field of formal logic, the clearer it was that the problems and questions of legal logic would not remain unaffected by the crisis in general logic, i.e. the antagonism between classical and mathematical logic.

Mathematical logic has often been considered the only permissible method of logical thinking⁴³, whereas the attempt at 'mathematizing' logic has been regarded as useless, even as dangerous. 'To press all logical operations into a mathematical pattern would lead nowhere. We have only to think of the high hopes Raymundus Lullus had for his *Ars Magna* in the thirteenth century. They proved completely useless, however, and no great and important discovery has come from this sometimes odd "mathematization" of logic in our age'.⁴⁴ But one thing cannot be denied: even though the limits of mathematical logic may be disputed, we cannot and must not overlook its success. Research in the field of political economy, of cybernetics, of automation, of the development of electronic computers and machines, etc., has provided irrefutable proof of the importance and practical value of mathematical logic, even if we disregard the new and decisive knowledge in the field of logic itself. It is precisely at this point that we may discover the possibly most decisive contribution of logistics from the point of view of law. The conclusions were given a new form and foundation with the aid of mathematical logic. The point of contact for logical investigations within legal science has almost always been the attempt to connect the logical

⁴³ Cf. Bernays, 21 *Journal of Symbolic Logic* (1956) 205.

⁴⁴ A. Kastil, *Die Philosophie Franz Brentanos*, Bern, 1952, p. 209. Cf. also the critical remarks of W. Albrecht, *Die Logik der Logistik*, 1954, 9ff., 45ff.

and legal conclusions. For this reason alone it is not possible to ignore mathematical logic. If we do not want to return to the thesis of an autonomous legal logic, then we shall have to ask about the importance and meaning of logistics in the field of legal science.

The interdependence between general and a possible legal logic implies, therefore, an examination of the basic principles of mathematical logic, just as it had made the consideration of classical logic necessary.

The nightmare of a 'mathematization' of legal science should not stop us either from carrying out this examination.⁴⁵ Mathematical logic admittedly originated in the effort to do justice to the logical requirements of mathematics. But it also aims to be a foundation for logical thinking as such beyond the limits of mathematics. The slogan of the 'mathematization' of legal science is used almost always without a sound knowledge of and proper investigation into the fundamental doctrines of mathematical logic.⁴⁶ Slogans, however, are completely useless wherever the attempt is made to develop a logical system. We can never determine *a priori* the worth or worthlessness of mathematical logic. Only the result of an exact inquiry into the forms and aims of mathematical logic can tell us whether this 'mathematization' is a danger to or a step forward in legal reasoning.

When speaking of the relationship between mathematical logic and legal science, we should not be led to assume that the use of symbols in legal science is equal to the use and application of mathematical logic in it. Theodor Geiger's investigations⁴⁷ as well as the works of Alf Ross⁴⁸ within the Scandinavian realistic school provide an interesting example for the combination of symbolism and legal science. But it was not the purpose of these authors to supply a basis for the application of mathematical logic.

Indications of the use of mathematical methods of reasoning in law are already traceable in the work of Felix Kaufmann.⁴⁹ It was Kaufmann's aim to connect basic ideas in mathematics, especially in geometry, with the results of the phenomenological method of Edmund Husserl regarding the specific needs and interests of legal science. Kaufmann, therefore, still keeps to the general philosophical approach instead of an analysis based on pure calculization.

It was W. Hofacker's research that allowed us, for the first time,

⁴⁵ Cf. also Giorgianni 30 *RivIntFD* (1953) 463, and the remarks of Ackermann 1 *Ratio* (1957) 1.

⁴⁶ Characteristic of this attitude are the observations by Carnelutti in *RivDirPr* 1951, p. 211f.

⁴⁷ *Vorstudien zu einer Soziologie des Rechts*, 1947.

⁴⁸ Cf. especially *On Law and Justice*, 1959, p. 158ff.

⁴⁹ *Logik und Rechtswissenschaft*, 1922.

to realize and evaluate the importance which an adoption of the principles of mathematical logic would have.⁵⁰ 'A figurative knowledge of the logical principles in analytical geometry seems to be indispensable for each and every logical process of reasoning in law.'⁵¹ We notice the influence of Reichenbach in Hofacker's thoughts. But his work can hardly be considered much more than a first attempt at applying mathematical logic. Statements like the following: 'for the mathematical as well as the legal way of thinking the former is the starting-point',⁵² are still far too general to show the advantages for legal science which acceptance of a mathematical instead of the classical logic would have. Hofacker does try to explain the importance of implication, but his statements are still far too abstract. The same applies to his demand for an axiomatic system in legal science. Nevertheless, there are ideas in Hofacker's arguments that can be taken as directives in all examinations of the relationship between mathematical and legal logic.

Since that time the function of mathematical reasoning as a basis for an eventual exact definition of legal terms and legal thinking in general has been stressed repeatedly.⁵³ Prejudices considering mathematical argumentation as a perversion of legal thinking were combated, the advantages of logistics pointed out. In this connection we may mention the works of Tammelo especially.⁵⁴ His ideas are marked by an effort to describe mathematical logic as a method of thinking which might enable law to master modern social problems. Tammelo does not consider the application of mathematical logic a revolutionary change in legal thinking but only a means for a more exact way of reasoning. At the same time, however, he points to a problem the solution of which is essential to an assessment of the value of mathematical logic. The latter should not be taken as an attempt to overemphasize the normative element within legal science. Mathematical logic might therefore be used in research on the sociological substrata of legal order. The conflict between norms and substrata is, for that reason, not intensified.⁵⁵ This now raises the question about the limits and dangers of mathematical logic. At the

⁵⁰ Cf. 21 *ArchRuSPH* (1927), 18ff.

⁵¹ *Op. cit.*, p. 23.

⁵² *Op. cit.*, p. 25.

⁵³ Cf. especially J. Keyser, 38 *Yale L. J.* (1929) 413, 416; Oppenheim, 11 *Philosophy of Science* (1944) 142; Giorgianni 30 *RivIntFD* (1953) 462; Stoljar 20 *U.Chi.L.R.* (1953) 181; Magni, 61 *Il diritto ecclesiastico* (1950) 193, 62 (1951) 1, 6 *Rivlt Segur* (1952-53) 62; Pottino, *Bollettino dell' Istituto di filosofia del diritto dell' Università di Roma*, 1940, 32; Paradies, *Metodos* 1949, 270. Allen, 66, *Yale L. J.* (1957) 833.

⁵⁴ *Untersuchungen zum Wesen der Rechtsnorm*, 1947; *Legal Dogmatics and the mathesis universalis*, 1948; 44 *ArchRuSPH* (1958) 495; 45 (1959) 95; 30 *Austr. L.J.* (1957) 496; 8 *Journal of legal education* (1956) 277, 12 (1959) 307; 8 *Am. J. Comp. L.* (1959) 187.

⁵⁵ Cf. 8 *Journal of Legal Education* (1956) 303.

same time the necessity of a systematic examination of the relationship between logistics and legal science becomes evident, i.e. the necessity of overcoming the fragmentary nature of hitherto existing studies. Valuable as Tammelo's investigations may be on particular points, their deliberate limitation to special problems deprives them of the possibility to serve as general statements on the importance of mathematical logic for legal science.

III

1. The first attempt of an exhaustive system of legal logic based on mathematical logic was made by Ulrich Klug.⁵⁶ With his book the realm of general and therefore no longer exactly definable speculation about the relationship of mathematical logic and legal science was finally left. The field of an exactly defined investigation, with an absolutely clear scope, was entered. Klug's careful consideration of logical problems permits no deviations into abstract indications and hints but demands an exact discussion of the value of mathematical logic in the field of legal research.

2. The book has four parts: the introduction (pp. 1-22) is followed by sections on 'the basic doctrines of pure logic, illustrated by examples from legal logic' (pp. 22-100), 'special arguments of legal logic' (pp. 101-47), and the relationship of 'logic, legal science, and philosophy of law' (pp. 147-56).

The introduction defines first of all the object of the investigation. Legal logic, in the opinion of Klug, is 'the doctrine of the rules of formal logic that are applied to finding law'. Two other points may be mentioned in connection with the introduction: on the one hand the critical examination by the author of the theory of Free Law and of the Jurisprudence of Interests as the chief exponents of 'anti-logical' argumentation; on the other hand the fundamental importance for the statements of the author of the third edition of Hilbert-Ackermann's *Grundzüge der theoretischen Logik*⁵⁷ and of Rudolf Carnap's *Symbolische Logik* (1954). Klug tries to embody in legal science the logistical principles in the form in which he found them in the two above-mentioned works.

The second section, according to the author himself, forms the general part of the book. It is an introduction to the elementary doctrines of symbolic logic — written for lawyers who are not

⁵⁶ Ulrich Klug, *Juristische Logik*, 2nd ed. Springer Verlag, Berlin/Göttingen/Heidelberg, 1958.

⁵⁷ In the meantime a new fourth edition appeared which must be mentioned because the systems of axioms used and adopted by Klug for the calculus of statements and predicates have been replaced by new ones.

acquainted with mathematical logic. The combination of predicates and universal predicative connections are the central topic of the discussion on the calculus of predicates. The author stresses especially the conditional, because it is just this part of logic that might be of outstanding importance for legal science. Klug believes that legal conditions should be based on a clear distinction between sufficient, necessary, and sufficient and necessary conditions. Dealing with the calculus of predicates Klug treats primarily the basic form of a legal conclusion, that is with the problem of subsumption of the case under the legal rules. The logical structure of the basic form is represented by two formulae, provable in the calculus of predicates:

$$1. \{[(x) (F(x) \rightarrow G(x))] \& [(x) (G(x) \rightarrow H(x))]\} \rightarrow [(x) (F(x) \rightarrow H(x))].$$

$$2. \{[(x) (F(x) \rightarrow G(x))] \& F(y)\} \rightarrow G(y).$$

Both are formulae of pure logical calculus. But they are too the forms of conclusive forms of the *modus barbara*. To show their actual significance for legal science, Klug gives some variants of the formulae. E.g.:

$$\{[(x) (F(x) \rightarrow V(x)) \& [(x) (V(x) \rightarrow R(x))]\} \rightarrow [(x) (F(x) \rightarrow R(x))].$$

(*F* a property of the case to be subsumed, *V* legal presuppositions, *R* legal consequences.) Inclusion and class-connection are the basis in the treatment of the calculus of classes. Isomorphism, converse, similarity, equality, counter-domain are the chief points in the calculus of relations. The section on the general doctrines closes with a discussion of the logic of definitions.

The next two sections are the most important for lawyers. Up till now the discussion had dealt with the basic features of mathematical logic and the author now turns to his actual task: the application of logistics to legal reasoning. Analogy and conversion, *argumenta a maiore ad minus*, *a fortiori*, *ad absurdum* are the means of traditional legal logic, but for Klug they are above all possible means of proving the usefulness of mathematical logic. This, however, is only the case because the various conclusions are only legal reifications of general logical laws in the eyes of the author, and not specific forms of legal reasoning. For this reason, Klug mentions the different types of conclusion but does not discuss the problem of the originality of the legal method of argumentation. According to the opinion of Klug, therefore, a conclusion by analogy is only a formal conclusion after the *modus barbara*. It does distinguish itself, however, by the fact that the category corresponding to the median term is that of similarity.

The problem of the relationship between formal logic and legal methods of argumentation appears most clearly in the discussion about the so-called *argumentum a maiore ad minus*. Here the author is faced by a number of theories and examples that rob the aforementioned conclusion of its appearance as a formal-logical conclusion. This does not lead him to conclude, however, that a precise analysis of the relationship between legal argumentation and formal logic is necessary, but only to demand a correction of the methods of argumentation from the point of view of logistics. This applies similarly to all the other examined forms of conclusion. The category of the so-called legal conclusions is thereby limited in a double respect: on the one hand to the existent and already generally accepted conclusions, and on the other to analogy and conversion to which alone mathematical logic is applicable in the opinion of the author.

The last section is devoted to the relations between logic, legal science, and philosophy of law. Its size may seem small compared to the other two, but its importance is just as great if not greater in some respects. Here the author raises the problem that is decisive for the *raison d'être* of logic within the field of legal science, namely the question about the limits of formal logic. But the author answers this question only in part, especially by categorically rejecting all forms of logicism, i.e. any reduction of legal science to the exclusive emphasis of the logical aspect. Following this statement he demands that axioms be developed and established in legal science. Legal terminology, perfected in its historical development, could serve as a primary stage towards calculation. Only then could we hope to determine the exact position of legal logic. The clear concepts of calculus would be substituted for the less precise legal abstractions. This would also do away once and for all with the natural tendency of all law towards abstraction.

An important result of establishing axioms would be the effect of liberalization. The axiomatic method gives the legislator freedom to apply the most diverse axioms provided they do not contradict each other. This freedom, however, is limited by the teleological nature of all legislative action. It is therefore the task of legal philosophy to establish a calculized system of teleological axioms. But the problem of the functional relationship between logic and teleology is still unsolved. The teleological system of axioms would have to be supplemented by the system of axioms of exact philosophical ethics which would encompass the behaviour of man in all its features and aspects. The teleological structure of the world is thus added to the logical.

IV

1. This survey of Klug's ideas had necessarily to be brief, but it will have given an idea of the numerous problems he deals with, and the very thorough way in which the author has tackled his task.

Each attempt at a discussion of the arguments put forward by Klug faces one particular difficulty from the very beginning. The extensive description of logistical principles leads us to assume that any discussion about the work of Klug would have to keep primarily, if not exclusively, to mathematical logic.⁸⁸ We might think the only problem is that of the adequacy of the formulae used but not of their validity. But such an argument would be correct only from the point of view of logic but not from that of legal science. It is not the task of legal logic to augment knowledge in the field of logic and to develop it. It is rather its duty to provide legal science with a definite and certain method of thinking. A discussion of the attempt at establishing legal logic, therefore, must primarily concentrate on the legal and not the logical aspect.

2. The definition of legal logic as the doctrine of the rules of formal logic applicable within legal science reveals a self-limitation of the object to be examined. Formal logic is only a phenomenon of logic and not logic as such. Thus it is a possible aid to legal science but not (*eo ipso*) the one and only logical form of legal reasoning. Such a conclusion could only be justified by an exact examination of the remaining forms of logic.

The identification of formal and legal logic, which is taken for granted today,⁸⁹ results in the limitation of the latter to the so-called doctrine of legal conclusions. But this ignores the problem as to whether logical considerations are useless in legal science above and beyond the field of traditional forms of conclusion. Modal and inductive logic, therefore, are not taken into account. Here, too, however, proof is lacking for the necessity of such an exclusion from legal logic.

3. Calculability and predictability of legal effects are necessary presuppositions of all legal order the purpose of which is the protection and not the abolition of individual rights. Logic, however, is a means of guaranteeing the development of a strict system that eliminates all doubtful and insecure factors.

Considering this we have to agree to all opposition to antilogical argumentation within legal science. But we cannot do so without much ado when the polemic against antilogical arguments involves a

⁸⁸ A criticism of Klug from this point of view is to be found in J. von Kempster, 113 *ZtschrGStW* (1956) 162.

⁸⁹ Cf. Tammelo, 8 *Journal of Legal Education* (1956) 278: 'Juristic logic, as I understand it is formal logic employed in legal reasoning.'

limitation of the discussion to the theory of Free Law and Jurisprudence of interests. It is no longer possible today to see the methodological problems in legal science only along lines that were significant for the controversy on legal method during the first thirty years after the turn of the century. Legal science has not come to a stop either with the theory of Free Law or the jurisprudence of interests. It would mean ignoring the results of the last few decades if we were to limit the question of the legal method to the arguments of the above two doctrines.

Moreover, it is only possible to mention both trends together if we see in them merely the exponents of a discussion on one particular form of legal reasoning: that of the so-called jurisprudence of concepts (*Begriffs jurisprudenzen*). In this respect, both doctrines are of definite value especially as regards the problem of the importance of legal logic. For the jurisprudence of concepts, too, based itself on the idea of a self-sufficient logical system of law.⁶⁰ The 'logical organism and function of law'⁶¹ was its starting-point.⁶² Its aim was a system that would be immune from all influences on the part of social reality. The *raison d'être* of logic within the jurisprudence of concepts derives from its task to be the means for a radical separation of social reality and legal norm. The legal concepts, however, do not exist outside of all reality but only for the purpose of shaping a definite reality. They can therefore be correctly interpreted only if they are situated in that reality. It was the mistake of the jurisprudence of concepts not to have recognized this. This was also the cardinal point of the controversy on legal method.

Even though the jurisprudence of concepts was the common adversary of the jurisprudence of interests and the theory of Free Law, we should not put the former on a level with the latter. The theory of Free Law is the exponent of just those dangers that have to be firmly opposed with the help of legal logic. Jurisprudence of interests, in contrast, is the starting-point for the necessary epistemological supplementation of all legal logic.

The theory of Free Law is only one of the many different forms of irrationalism within legal science. Just as any other irrational tendency, this theory also detaches legal order from all firm ties in order to make it a field for 'free' judgment. But the sense of statute law lies in the security guaranteed by its precise formulation. And precedents do not exist for their own sake but to ensure an intelligible uniform practice in the application of the law. To put the

⁶⁰ Heck, 143 AcP (1937) 152.

⁶¹ Ihering, *Geist des römischen Rechts*, I, 5th ed., 1891, p. 36ff.

⁶² Cf. especially W. Wilhelm, *Zur juristischen Methodenlehre im 19. Jahrhundert*, 1958, 94ff.

'irrational' judgment in the place of objectively determinable factors means turning legal order into its opposite, or disguising arbitrary rule by giving it the shape of a legal order.

Logic and arbitrariness, however, are incompatibles. Logic should, therefore, be the tool of legal science in combating arbitrariness. To appeal to legal logic is a challenge to fight against all the dangers that are apparent in a 'free' application of the law.⁶³ Logic in law is not an end in itself or a dallying with thoughts and ideas but a demand for such means in finding and applying law as can guarantee the observation of legality.⁶⁴ It does not matter in this connection what limits are set to logic within legal science. The only important thing is to recognize the function of logic as a possible means of guarding against a dissolution and misuse of legal order.⁶⁵

However, the above remarks about irrationalism and the theory of Free Law do not apply to the jurisprudence of interests. The latter has neither asked for the abolition of all concepts nor demanded the dissolution of the systematic structure of legal science. But its representatives have always been conscious of the instrumental character of all systems and concepts. Concepts and system were for them only tools enabling them to deal competently with concrete problems dependent on real circumstances.

The jurisprudence of interests tries to understand the factors responsible for the origin of legal questions and, in the last analysis therefore, also for the decisive standards for a solution of legal problems. Its aim is thus essentially epistemological. Its field begins precisely where the boundaries of formal logic, whether classical or mathematical, lie: in the question about the cause of the origin of those theses which formal reflection accepts as given quantities, but which for epistemology are the starting-point for an analysis. Formal logic does not, or at least should not valueate; jurisprudence of interests does necessarily do so.

The aim of the controversy between formal logic and the jurisprudence of interests, therefore, has never been a psychological one⁶⁶ but a methodological one of always immediate interest. It was directed against the jurisprudence of concepts as a methodological phenomenon resulting from a specific historical situation. Not only a type of lawyer but also a method of thinking was to be abolished.

⁶³ Cf. also Rheinstein, 18 *U.Chi.L.R.* (1951) 409; Brusiin, *Juristisches Denken*, 113f.; but also Engisch, 69 *ZStrW* (1957) 621. Puig Brutau in his introduction to Loevinger, *Introducción*, p. 27.

⁶⁴ Cf. also Brusiin, *Juristisches Denken*, 110ff.

⁶⁵ That is why E. Meynial defined logical forms in law as 'garde-fous au bord du ravin' in *Revue de métaphysique et de morale*, 1908, p. 187; cr. also Moor, 2 *RevIntThDr* (1927) 176f.

⁶⁶ Klug, *Juristische Logik*, p. 12.

No matter what the mistakes of the jurisprudence of interests may have been, its ideas have pointed the way that finally leads away from the danger of law being fixed in unreal abstraction, hostile to reality.

4. Analogy was always one of the most usual means of assuring the continuation of the authority of legal order. With its help the original field for the application of statute law and precedent was extended. Analogous application meant adding of new problems brought about by social developments to the system of traditional legal concepts. It is therefore indicative not only of a particular field of legal order, but a part of legal practice in all fields of law. Its importance, however, varies according to the legal field in question. For example, though there was never any doubt about its basic applicability in civil law, its use in criminal law has always been the subject of bitter controversies.⁶⁷ This distinction already raises doubts about the generally presumed formal character of analogy, for the limitation of the field where analogy may be used is not the result of a formal factor but of its ability to create new law.

This also becomes evident in a comparison of extensive interpretation and analogy.⁶⁸ Extensive interpretation only wants to be a terminological elucidation. The application of law is assured by the removal of all doubts about the exact meaning of the words. Analogy, on the contrary, wants to reify the principles of law as they are contained in statute law and precedents. The extensive interpretation is to keep to the law. Analogy is to develop it by the extension of the principles. The creative character of analogy is thus clearly recognizable. But it is more than doubtful where exactly the boundaries are between analogy and extensive interpretation. Though a terminological distinction may be possible, the factual distinction seems to be a question of expediency. There is no hard and fast rule in legal science when one should use analogy or when extensive interpretation. The latter could, therefore, gradually become a way of circumventing analogy. In both cases there is a valuing interpretation of statute law or precedents. Thus new doubts arise about the formal character of analogy. At the same time, however, the justification of the demand for an elucidation of its conditions is emphasized. Only thus will it be possible to stop circumventing the prohibition of the use of analogy. The real structure of analogy, however, cannot be shown by terminological distinctions but only by cases where analogy has been used.

⁶⁷ Cf. recently Sax, *Das strafrechtliche Analogieverbot*, 1953, and in Bettermann-Nipperdey-Scheuner, *Die Grundrechte*, III 2 (1959) 292ff.; Jeschek, 12 *Studium Generale* (1959) 113ff.

⁶⁸ Cf. Bollio, *Analogia* p. 139; Enneccerus-Nipperdey, *Allgemeiner Teil*, 15th ed., 1959, § 58 II, 2.

The following case, for example, is relatively simple. To give notice on cogent grounds is not provided for in cases of tenancy or hiring by German civil law. But companies or contracts between masters and servants might be dissolved by a notice on cogent grounds. Tenancy, hiring, companies, master and servant contracts are all typical examples of obligatory relationships characterized by their permanence. If, therefore, the notice on cogent grounds is not to be considered a specific means to invalidate deeds of partnership or master and servant contracts, but an adequate way of ending permanent obligatory relationships, then it is possible to conclude that a notice on cogent grounds is also admissible in tenancy, and that the corresponding regulations in company and master and servant law can be applied analogously. This was actually done.⁶⁹ Everything seems to be clear so far. The analogy practised here remains within the field where no objections can be raised to logical formulas. The character of the legal positions is clear as well as their mutual relationship. The similarity of the permanent obligatory relationships, the presupposition of analogy, is evident. But the question becomes more difficult as soon as we go on to the more complicated and really important cases of analogy.

Contractual relationships presuppose a contract according to the system of all legal orders. Void or voidable contracts are no longer contracts. The law of contracts, therefore, presupposes for its application not only a contract, but also a valid contract, i.e. a contract formed within the limits set to private autonomy by the legal order and grounded on a correct declaration of intention. The field of application of the law of contracts seems thus to be clearly defined. But, under the influence of social development, continental lawyers are increasingly faced with the question whether the law of contracts should not be applied also in cases where there is no contract at all, or where the existing contract is void or voidable.⁷⁰ This is especially true of companies, master and servant relationships and the law of all modern means of mass-transport. An analogy here? This opinion has been repeatedly expounded.⁷¹ But now as ever the *conditio sine qua non* for all analogy is the fundamental similarity between the solved case and the one still to be solved. Is it possible, however, to consider a situation in which there is no contract at all

⁶⁹ Cf. RGZ 94, 234; 149, 88; 160, 361; Beitzke, *Nichtigkeit, Auflösung und Umgestaltung von Dauerrechtsverhältnissen*, 1948, p. 47.

⁷⁰ The problem in question is that of so-called factual contractual relationships. Cf. S. Simitis, *Die faktischen Vertragsverhältnisse*, 1957; W. Siebert, *Faktische Vertragsverhältnisse*, 1958.

⁷¹ Lehmann, 90 *JherJ* (1942-43) 131, *Allg. Teil*, 8th ed., 1954, p. 141; Staudinger-Coing, *BGB*, 11th ed. preliminary remark to § 116; Funaioli, *Rapporti di fatto in materia contrattuale*, *Annali dell' Università di Ferrara Sezione X*, vol. I, Nr. 4, pp. 145ff.

similar to a contractual relationship? It would be more correct to conclude that the law of contracts is inapplicable. Such a conclusion would correspond to a strictly formal logical view. And yet, legal science has disregarded all this. Factual contractual relationships have more and more been placed on a level with normal contracts. Analogy served only to justify a result established from the very beginning. It was not the logical operation that decided the result; it had to agree with it.⁷² Continental lawyers arrived at an equal treatment of factual contractual and true contractual relationships with the help of axiological arguments. This valuation hides behind the guise of an analogy.

As a last example, I should like to mention the problem of the applicability of the law of sale to the transfer of a firm. Klug⁷³ believes that an analogy is quite possible, and this corresponds to the prevailing opinion on this subject. But according to the system and the principles of German civil law the law of sale can only be applied to the transfer of goods for reward. Klug's starting-point is the statement that the law of sale is applicable to contracts of sale or similar contracts. He then arrives at the conclusion that 'whenever contracts scoping the transfer of a firm for reward are contracts similar to a contract of sale and if §§ 433ff. of the German civil code are applied to contracts of sale or similar contracts, then §§ 433ff. are applicable to contracts scoping the transfer of a firm for reward'. This reasoning is expressed by the following logical formula:

$$\{(a \subset \beta) \ \& \ [(\beta \cup \gamma) \subset \delta]\} \rightarrow (a \subset \delta).$$

The formula may seem clear, but the problem is not solved by it. The first and most important question concerns the conditions that allow the transfer of a firm for reward to be considered similar to a contract of sale of goods. The decisive point for the lawyer is thus the legal treatment of the firm. According to the position assigned to the firm in most legal systems it cannot be regarded the same as goods.⁷⁴ The formal presuppositions of their commensurableness are lacking. The formal logical operation, as Klug suggests it, cannot be proceeded with before the premise, i.e. the relationship between transfer of firm and sale of goods, is clarified. Yet the decisive step for the analogous application of the law of sale cannot be taken by means of formal logic but only by axiology. The valuation of the position of the enterprise, of the conflicting interests that arise from its activities, and of the principles of legal order to which reference may

⁷² Cf. especially Scheuerle, *Rechtsanwendung*, 109ff.

⁷³ *Juristische Logik*, p. 125.

⁷⁴ Cf. G. Koumantos, *Erwerberhaftung bei Unternehmensveräußerung*, 1955, especially 3, 12, 153, 163ff.

be made in solving these conflicts leads to the necessity of applying the law of sale. But just this application is the essence of legal analogy. Legal analogy, as the example of the transfer of a firm shows anew, has above all the task to define what has to be considered similar to the solutions given by a certain legal order. This task can never be performed by formal logical arguments.⁷⁵ Such arguments fail to convince. They may perhaps put into practice premises that have been ascertained, but they cannot ascertain the decisive premises for an analogy.⁷⁶

It is, therefore, by no means surprising but rather hits the nail on the head when we read in a well-known text-book of German civil law⁷⁷ that 'we should never deny an analogy on the grounds of a mere interpretation of words or purely logical conclusions, but always solely on the ground of a valuation of the interests involved'.⁷⁸ This reveals the whole problem of legal analogy. It appears to be a logical method but is in most cases a teleological process of valuation.⁷⁹ Whether and when we are entitled to use an analogy in legal science is not determined by means of formal logic.⁸⁰

This is also illustrated by the treatment of legal rules qualified as exceptional provisions. In this case analogy is considered inadmissible.⁸¹ The exceptional character of such rules is contradictory to an analogous application. Nevertheless, an analogy is permitted when the principles on which the exceptions are based allow the use of an analogy!⁸² It could hardly have been said more clearly. The guiding principle for an analogy stems from the evaluations on which legal order is based and not a formal logical operation, be it as exact as it may.

⁷⁵ Cf. also Engisch, Einführung, p. 145, *Logische Studien* 33ff., who remarks quite correctly that legal concepts cannot be compared by means of the same standards as logical concepts, and who thus arrives at the conclusion: 'which sides I shall regard and observe in the comparison of two objects will be determined by the special interests that move me in this comparison' (p. 36).

⁷⁶ Cf. Engisch, 12 *Studium Generale* (1959) 83.

⁷⁷ Lehmann, *Allg. Teil.*, p. 56.

⁷⁸ Cf. also Ascarelli, *Studi di diritto comparato e in tema di interpretazione*, p. xviii; Stone, *Province*, p. 140.

⁷⁹ Cf. Esser, *Grundsatz und Norm*, p. 102, 12 *Studium Generale* (1959) 105; Meier-Hayoz, *Der Richter als Gesetzgeber*, 1951, p. 161; Du Pasquier, *Introduction à la théorie générale et à la philosophie du droit*, 3rd ed., 1948, p. 200; Enneccerus-Nipperdey, *Allg. Teil*, § 58 II; but also R. Pound, *An Introduction to the Philosophy of Law*, reprint 1959, p. 52.

This is particularly clear despite the prohibition of analogy in criminal law when Jeschek, for example, says: 'The prohibition of analogy means only that it is forbidden to pass across the limits of interpretation which are evidently drawn by the meaning of law.' 12 *Studium Generale* (1959) 113.

⁸⁰ Cf. remarks by Lloyd, 64 L.Q.R. (1948) 481; Stone, *Province*, 190ff., 195.

⁸¹ Engisch, especially in his Einführung, 147f.; Enneccerus-Nipperdey, *Allgemeiner Teil*, § 48 I 2; Nawiasky, *Allgemeine Rechtslehre* 1948, 135f.; Reinicke; 7 *NJW* (1954) 1219; Zimmermann, 7 *NJW* (1954) 625; Germann, *Methodische Grundfragen*, 1946, p. 110; Heck, 112 *Ach* (1914) 186.

⁸² Cf. Zimmermann, 7 *NJW* (1954) 624.

The component designated as 'similar to M' by Klug is therefore the most important factor of legal analogy, but it is also an element not open to formal logic because it is not a question of form but of substance.⁸³ Legal analogy is not the technique of deduction from established rules; it is the result of an axiological observation.⁸⁴ In legal science analogy is part of interpretation and as such it does not mean to re-think something already thought out, but to lead a thought to its final conclusions.⁸⁵

It should not be argued that what matters is not the decision whether the case is similar or not, but the subsequent application of the given rules to the case that has been recognized as being similar. This alone would be relevant for a formal logical consideration. This may sound quite well in theory but is contradicted by practice. Whether and which rules of the law of sale are to be applied in the transfer of firms cannot be deduced from the simple statement that such a transfer is similar to the sale of goods. The very profound differences of opinion on the individual rules to be applied show this clearly.⁸⁶ Which rules are to be used will depend exclusively on how the conflict of interests at the base of the various rules is related to the principles for the valuation of the case qualified as similar.

What has been said just now about analogy also applies to the *argumentum a simili*, which is frequently found in Anglo-American law.⁸⁷ Even more than the individual norms of statute law, a precedent reflects special conditions.⁸⁸ In case law the necessity for an evaluating approach to the case is much more explicit.⁸⁹ 'A case is only an authority for what it actually decides. I entirely deny that

⁸³ Cf. Esser, 12 *Studium Generale* (1959) 105, *Grundsatz und Norm*, 183ff., 267ff.; Meier-Hayoz, *Richter*, 84ff., 160ff.; Lloyd, 64 *L.Q.R.* (1948) 468; Nawiasky, *Allgemeine Rechtslehre*, p. 147; but also Ross, *On Justice*, 148ff.; Wieland, 4 *Philosophische Rundschau* (1956) 211.

⁸⁴ Cf. Ascarelli, *Studi*, p. xviii; Esser, *Grundsatz*, 102, 161f., 231f., 252f.; Belin-Milleron in D. 1954, 127ff., who stresses the 'ethical' nature of legal logic; Apeldoorn. *Inleiding tot de studie van het nederlandse Recht*, 13th ed. 1955, p. 334.

⁸⁵ Radbruch, *Rechtsphilosophie*, 4th ed., 1950, p. 211; Radbruch-Zweigert, *Einführung in die Rechtswissenschaft*, 9th ed., 1952, p. 243.

⁸⁶ This applies, for instance, to the limitation of actions for defects of goods, cf. Ennecerus-Lehmann, *Schuldrecht*, 15th ed., 1958, §§ 101 II 5, 108 IV 1.

⁸⁷ Cf. especially Tammelo, 8 *Journal of Legal Education* (1955) 298; Levi, *Introduction*, 2ff.

But we find this argument in Continental law as well, cf. *BGE* 63, II, 173.

⁸⁸ Lord Nottingham in *Duke of Norfolk's Case* (1681) 3 Chan. Cas. 14 (36): 'It hath been argued at the bar, where will you stop if you do not stop at Child and Bagly's Case? I answer, I will stop everywhere when any inconvenience appears, nowhere before.' Lord Coleridge C.J. in *Mayor of Southport v. Moriss* (1893) 1 Q.B. 359 (361); Stone, *Province*, 169ff.; Lloyd, 64 *L.Q.R.* (1948) 468; but also Glanville Williams, 61 *L.Q.R.* (1945) 302, who for this very reason stresses the legislative activity of the judge.

⁸⁹ Cf. Esser, *Grundsatz*, pp. 235ff.; Levi, *Introduction*, p. 2; Cardozo, *Growth of the Law*, reprint 1959, p. 100; Tammelo, 8 *Journal of Legal Education* (1955) 299, who, nevertheless retains the formal logical method of observation.

it can be quoted for a proposition that may seem to follow logically from it.⁹⁰

Next to the analogy the *argumentum e contrario* is probably the most important form of legal 'conclusions'. The relationship between conversion and analogy is important for the question about the logical nature of legal conclusions. In the opinion of Klug⁹¹ the possibility of an analogy is independent of the possibility of a conversion. With this Klug opposes the widely held opinion that everywhere where an analogy may be made a conversion is also possible.⁹² From a strictly logical point of view Klug is right. But the fact that this opinion has not been accepted in legal science is due to the fact that it contradicts the axiological element in finding law. Only when it has been decided whether the given rules are to be extended or not can a decision be taken in favour of analogy or conversion.⁹³ But this question can only be answered by examining the principles on which every individual rule is based. Purpose and structure of the principles determine the particular form of conclusion to be applied. If it is maintained⁹⁴ that in any case this does not apply when the legislator wants to limit the effects of a norm to particular cases, then this argument too is the result of an appraisal. Because the law is interpreted in a special sense, i.e. appraised, only one form of conclusion is considered possible, the *argumentum e contrario*.⁹⁵

If analogy has always served the progressive development of the law, then the *argumentum e contrario* has always been the means of binding legal science to the exact formulation of given statutes and precedents and thus hindering all creative development.⁹⁶ The *argumentum e contrario* is, thus, the classical example of the dangers of formal argumentation in legal science.⁹⁷ The following examples might illustrate this.

According to article 102 of the Code Civil 'Le domicile de tout

⁹⁰ *Quinn v. Leathem* (1902) A.C. 506.

⁹¹ *Juristische Logik*, 134ff.

⁹² Meier-Hayoz, *Richter*, p. 248; Cohn, *Existentialismus und Rechtswissenschaft*, 1955, p. 109; Apeldoorn, *Inleiding* p. 334f.; Bartholomeyczik, *Gesetzesauslegung*, 1951, pp. 79ff. Esser, *Einführung in die Grundbegriffe des Rechtes und Staates*, 1948, p. 181; Nawiasky, *Allgemeine Rechtslehre*, p. 147f.; Moor, 2 *RechtThDr* (1927-28) 194; Puig Brutau in his introduction to Loevinger, *Introduction*, p. 20; Engisch seems to be of a different opinion, cf. *Einführung*, p. 144f.

⁹³ Cf. Ross, *On Justice*, p. 139; but also Stone, *Province*, p. 139.

⁹⁴ Enneccerus-Nipperdey, *Allgemeiner Teil*, § 58 II 4.

⁹⁵ A result of the interpretation determined by topics, cf. Viehweg, *Topik*, p. 59; but also Brusiin, *Über die Objektivität der Rechtsprechung*, 1949, p. 57.

⁹⁶ This led H. Reichel to remark very acidly: 'Except for the rather meagre *argumentum e contrario* I know of no scheme of reasoning that could serve better to oppress and dishonour the work of a judge ...' in *Gesetz und Richterspruch*, 1915, p. 97; also Ehrenzweig, *System des österreichischen Privatrechts*, 1925, I 1 p. 74.

⁹⁷ Cf. also O. A. Germann, *Methodische Grundfragen*, 1946, p. 129f.; Meier-Hayoz, *Richter*, 71, 158ff.; Böhrer, *Grundlagen der bürgerlichen Rechtsordnung*, II, 1, 1951 169ff.; Esser, *Grundbegriffe*, p. 181.

français ...' is 'au lieu où il a son principal établissement'. Courts and authors interpreted this in the last century with the help of the *argumentum e contrario* in the way that foreigners could have no domicile. The impossible results to which this attitude was bound to lead and actually did lead made it necessary to drop the *argumentum e contrario* and to approach the matter by analogy.⁹⁸ Meaning, scope and principles of the norm were completely misunderstood and misinterpreted by conversion.⁹⁹ The logical operation seemed to be indisputable, and yet it could not be maintained. It had to give way to a valuation based on an exact observation of the interests involved.

This applies also to the precedents of the Swiss Supreme Court on fictitious marriages. The Supreme Court originally refused to declare such marriages void.¹⁰⁰ The reason given was that article 120 of the Civil Law Code contains a definitive regulation of the grounds of annulment. By reason of conversion, therefore, it would not be justifiable to extend the grounds of annulment. But here, too, it was not possible to maintain this result for very long.¹⁰¹ The necessity for taking into consideration the demands arising from the actual situation destroyed the framework of the formal conclusion. It was proved anew that legal conclusions that are not arrived at by way of valuation have to make way, at one time or another, for an exact valuation of the conflict of interests in each particular case.

One last example: according to § 823, section 1, of the German Civil Code, tortfeasors have to compensate for all damages inflicted on the life, health, liberty, body, property, or other rights of another person. The use of conversion led to the result that § 823 was not considered applicable in the case where there was a violation of personal actions. So for instance if an employee is injured the tortfeasor has to compensate only the personal damage inflicted on the employee. The employer has no claim against him for the damages caused to his firm by the injury of the employee. Formal argumentation has prevailed. But it will fail to convince pending the clarification of the teleological problem concerning the extent to which the violated interests of a third person have to be considered, and taking into account the need to limit the obligation to compensate damages. Hence the difficulties that arise again and again in the treatment of this problem.¹⁰²

⁹⁸ Cf. especially Batiffol, *Traité élémentaire de droit international privé*, 3rd ed., 1959, No. 182.

⁹⁹ A typical example of the use of a 'maxim or definition with relentless disregard of consequences to a dry logical extreme'. Cardozo, in *Hynes v. N.Y.C.C.R.* (1921) 231 N.Y. 236.

¹⁰⁰ BGE 48 II 182.

¹⁰¹ Cf. BGE 65 II 135.

¹⁰² Cf. recently Gernhuber, *Festschrift für Nikisch*, 1958, 249ff.

The dangers connected with the use of the *argumentum e contrario* are thus evident.¹⁰³ Conversion can, at best, serve legal science by ascertaining the minimum of presuppositions that are necessary to bring about a possible compatibility between the solution of a case and the given statutes or precedents.¹⁰⁴ But an *argumentum e contrario* should never determine the applicability or non-applicability of existent rules.

The above-mentioned doubts and objections arise again even more strongly when we leave examples aside and turn to the logical form which Klug gives to the *argumentum e contrario*.¹⁰⁵

Klug maintains that the legal pattern of the *argumentum e contrario* is the following:

'Premise: if the facts of a case comply with the legal presuppositions $V_1, V_2, \dots V_n$, then the legal effects $R_1, R_2, \dots R_n$ will be applicable. Conclusion: if the facts of a case do not comply with the legal presuppositions $V_1, V_2, \dots V_n$, then the legal effects $R_1, R_2, \dots R_n$ will not be applicable.'

The *argumentum e contrario* has, therefore, the form of a specifically hypothetical conclusion. But such a conclusion is only permissible in the form of the *modus ponens*. In this form it is possible because it appears as a simple subsumption of the norm. But as the above examples have indicated, the fact that the legal presuppositions are not complied with does not mean in the least that the norm is not applicable. The core of the application of a certain legal order is the subsumption of new cases under rules expressing typical social conditions but which do not correspond entirely to the facts of the cases to be solved. If, therefore, we were to accept that conclusion, we should be limiting the field of interpretation, if not eliminating it altogether.

Klug himself believes that a conclusion in the form:

Each S is a P
No non-S is a P

cannot be maintained. The legal effect P is to be taken as the predicate of the subject S. But S is in legal science only one of the possible subjects. This would mean logically that the predicate P has a larger sphere of applicability than the subject S. This difference then determines the logical and legal untenability of the conversion.

¹⁰³ A very striking example is given by G. Spendel in his remarks concerning the *argumentum e contrario* based on § 59 of the German Criminal Code, 69 *ZStW* (1957) 441ff.

¹⁰⁴ Cf. also Meier-Hayoz, *Richter*, p. 71f.

¹⁰⁵ *Juristische Logik*, 129ff.

Klug does maintain, however, that the evident faults and dangers of the *argumentum e contrario* can be removed with the help of mathematical logic.¹⁰⁶ The correctness of the *argumentum e contrario*, he holds, depends on whether there is an extensive or intensive implication or even a reciprocal one in the conclusion 'each S is a P, no non-S is a P'. The interpretation of an 'if—then' relation decides the admissibility of the *argumentum e contrario*.

An extensive implication, however, does not lead any further. It would mean that the legal presuppositions imply the legal effects, if they are to be sufficient conditions for the latter. But that does not help the legal aspect of the matter. A sufficient condition cannot be the basis of an *argumentum e contrario*.¹⁰⁷

A way out would be the intensive and the reciprocal implication. The *argumentum e contrario* according to Klug would have to have the following form:

$[(x) (V(x) \supset R(x))] \rightarrow [(x) (V(x) \rightarrow R(x))]$ (intensive implication)

$[(x) (V(x) \sim R(x))] \rightarrow [(x) (V(x) \rightarrow R(x))]$ (reciprocal implication)

But there are objections to this use of symbolism, too. If the conditions were sufficient and necessary, or just necessary for the legal effects, the *argumentum e contrario* would be superfluous. In the case of necessary and sufficient, and of necessary presuppositions there is only one possible solution for an application of the law, namely that of the *modus ponens*. There is no room for an *argumentum e contrario*.

Yet we have not yet solved the problem of interpretation. For, as Klug observes, too,¹⁰⁸ the difficulty lies just in the qualification of legal presuppositions as necessary or as sufficient and necessary conditions. But this is not a question of the wording of statutes or precedents. It is a problem of the application of the law considering the given concrete situation and the situation aimed at. Which character is given to the legal presuppositions by the interpretation of law is, therefore, a matter of the policy of the law, which again proves the impossibility of an *argumentum e contrario*.

When entering the realm of the other so-called legal conclusions, our impression is intensified that in reality we are faced by a pseudo-logical argumentation. First of all this is valid for the *argumenta a maiore ad minus* and *a minore ad maius*. Klug qualifies these two arguments as subalternative conclusions. According to Klug their modern logical form would have to be expressed, therefore, in the following formula:

¹⁰⁶ *Juristische Logik*, 131ff.

¹⁰⁷ Cf. Klug, *Juristische Logik*, 131f.

¹⁰⁸ *Juristische Logik*, p. 133.

$$[(x) F(x) \rightarrow (E x) F(x)]$$

('For all x : if all x have the property F , there is at least one x with the property F . — What is valid for all, is equally valid for some (more exact: at least for one).')

$$[(\overline{E x}) F(x)] \rightarrow [(\overline{x}) F(x)]$$

('For all x : if it is wrong that there is at least one x for which F is valid, it is wrong too that for all x F is valid.')

In discussing the *argumentum a minore ad maius* Klug says expressively¹⁰⁹ that objections can be raised to the logical analysis in view of the use of the argument in law. This must then apply also to the opposite of the conclusion just mentioned, the *argumentum a maiore ad minus*. Both arguments have the same basis and serve the same process of thought, only in opposite directions. The arguments leading to the use of the one also determine the application of the other. Thus there can be no differentiation in their valuation. If we regard one as pseudo-logical, then we cannot avoid regarding the other the same. In reality both underline an evaluation. They are just rhetorical emphases of this evaluation, figures of speech by which a certain form of evaluation is indicated.¹¹⁰

This appears most clearly in the so-called *argumentum a fortiori*. In the following formula of the calculus of predicates Klug expresses this argument logically:

$$[(x) (V(x) \rightarrow R(x))] \rightarrow \{ (x) [(V(x) \& F(x)) \rightarrow R(x)] \}$$

('For all x : if x is a case which fulfils the legal presuppositions V , x is a case for which account the legal consequences R ; for all x therefore: if x is a case which fulfils the legal consequences V and if, furthermore, x has the property F , x is a case for which the legal consequences R hold.')

The formula, however, should not obscure the axiologic character of the conclusion, which is not at all overlooked by Klug. To quote an example, § 26, section 2, of the German Matrimonial Law permits the spouse who did not know about the voidness of the marriage to declare that in all matters concerning matrimonial property the effects of divorce should be realized. It is an open question what should be done if both spouses were acting in good faith. Arguing *a fortiori*, we should assume that what applies to one spouse acting in good faith should also apply when both acted bona

¹⁰⁹ *Juristische Logik*, 140f.

¹¹⁰ That is why Pisko believes that it is a matter of policy of the law, Klang, *Kommentar zum ABGB* I 1, 1927, preliminary remark to § 7; cf. also Schlesinger, 10 *RevIntThDr* (1936) 201.

fide. This is an appearance of a formal logical conclusion. The whole matter seems to be a simple proposition in arithmetics. Nevertheless, the result cannot be justified simply by stating that what applied to the good faith of one of the spouses must necessarily apply to the good faith of both. This is not a conclusive argument as long as the scope of the norm has not been examined. Only when it can be proved that this norm fulfils its scope also in the case of the good faith of both partners will it be permissible to apply to both what is valid for one of them alone. Here too, therefore, it is a matter of valuating the case to be decided with the help of the principles on which the concrete norm is based.

In order to illustrate once again the limits of formal logic in the field of legal science, I should like to mention, in conclusion, the problem of the so-called dual effect in law (*Doppelwirkung*).¹¹¹ Dual effect means nothing else but that a legal act might be simultaneously void and voidable. If a legal act, for example, is void because of a formal defect, this does not mean that the same legal act cannot be voidable because of a fraud. The same problem arises, when examining the possibilities of divorcing a void marriage. From the point of view of formal logic the dual effect must be rejected. Voidness means that the legal act has legally never existed. But then it is logically impossible for it to be voidable, since this presupposes the existence of the legal act. Voidness is the plus-mark which, when given, excludes an avoidance, the minus-mark, so to speak. This result cannot be confirmed by an exact examination of the interests involved in a case like the above. The scope of the legal institutions voidness and avoidance would be misunderstood if we were to make the exclusion of voidness the *conditio sine qua non* of avoidance. If we consider voidness and avoidance merely as valuations, then the scope of applicable rules will determine the solution of the individual case.¹¹² It is not the terminological confrontation of voidness and avoidance and the formal logical deductions based on this confrontation that are decisive, but the teleologically grounded valuation of the interests involved in each individual case.

Legal conclusions, therefore, do not prove themselves to be a part of applied general logic. What legal conclusions seem to have in common with logic is merely the name. Argumentation with the help of legal conclusions is only pseudological argumentation.¹¹³

¹¹¹ Cf. especially BGH in *JZ* 1955, 500; Kipp in *Festschrift für Martitz*, 1911, pp. 211ff.; Dölle, *Juristische Entdeckungen*, 1958, p. B 12ff.; Husserl, *Archion idiotikou dikaion* 1 (1934) 690; Zepos, 27 *ArchRusPh* (1934) 480; Enneccerus-Nipperdey, *Allgemeiner Teil*, §§ 136 I, 203 III 7; Serick, 21 *RabelsZ* (1956) 207.

¹¹² Cf. also Engisch, *Einführung*, 38ff., especially p. 42.

¹¹³ Cf. Meier-Hayoz, *Richter*, p. 161; Lloyd, 64 *L.Q.R.* (1948) 476; but also Esser, *Grundsatz*, p. 102.

'... wrapping up a legal argument in the form of a syllogism is nothing more than a kind of window-dressing.'¹¹⁴ It is only a proof for the fact that courts and authors 'are able to present the growth of law as "logical" ... even while they make a choice before which logic itself stops short'.¹¹⁵ On the basis of this argumentation, therefore, no legal logic can be founded. Legal logic begins where the pseudologic of legal conclusions stops.

It is not by mere accident, however, that specially the courts have tried again and again to impart to their arguments the forms of logical argumentation. The fiction that the rules of logic are observed in judgments has great importance, for it tries to avoid the impression that interpretations are arbitrary. The true reason for a judgment, namely the valuation,¹¹⁶ is concealed and the way of pseudological argumentation is chosen. A state governed by the rule of law permits only such judgments as are based on statutes or precedents. The doctrine of conclusions enables legal science to give the impression that the results obtained are objective and necessary consequences of the given rules.¹¹⁷ The security which is vouchsafed by the existent law thus seems preserved and the insecurity of an appraising legal judgment avoided.¹¹⁸ It is because of this ideological function of legal conclusions that legal science has always maintained pseudological argumentation. This is the necessary result of a concept of law according to which to apply law means solely to apply the solutions provided by the existent rules to each case in turn.¹¹⁹ The idea that each judgment must be the inevitable logical result of a given legal rule originated in the conception that a legal order comprises the complete and perfect solution of any number of possible cases. In that case, each judgment that does not logically follow from a concrete rule will be arbitrary. Hence the invocation of the logical formula becomes an inherent part of all legal reasoning. Instead of proving the correctness of the judgment by arguments based on the scope of the law, the conclusion is used to remove all doubts that the reference to statute or precedents was absolutely necessary. The doctrine of legal conclusions thus became a hypostatization.¹²⁰ Purpose, meaning, and limits of legal logic, therefore, can

¹¹⁴ Lloyd, 64 *L.Q.R.* (1948) 480.

¹¹⁵ Stone, *Province*, p. 206; Holmes, 9 *Current Legal Thought*, 387.

¹¹⁶ Cf. also Scheuerle, *Rechtsanwendung*, especiall 114ff. Boasson, *Sociological aspects* p. 54; Esser, *Schuldrecht*, 2nd ed., 1960, p. 234; F. S. Cohen, 59 *Yale L.J.* (1950) 238.

¹¹⁷ Cf. especially O. A. Germann, *Methodische Grundfragen*, p. 67; Radin, 33 *Col. L.R.* (1933) 219; Meier-Hayoz, *Richter*, p. 161; Cohn, *Existentialismus*, p. 107; Ross, *On Law and Justice*, p. 154.

¹¹⁸ Cf. also Jensen, *Nature*, p. 1.

¹¹⁹ The ideological function of logical argumentation is stressed by Rheinstein, 18 *U.Chi.L.R.* (1950-51) 409; and before by Ehrlich, 115 *AcP* (1917) 177, 190, 411ff.

¹²⁰ Cf. also the remarks by Ross, *On Law and Justice*, 128ff.

only be correctly understood when the fiction that the doctrine of legal conclusions is 'logical', is done away with.

If we succeed in showing the boundaries between axiological and formal logical reasoning in law, then the doctrine of legal conclusions might be given a new meaning. Its field of application would then be beyond that of valuation. Legal logic would have the task to elucidate the possibilities of an exact realization of a valuating judgment.¹²¹ On this limitation depends its success. The logical process could then be really conducted according to the rules of logic. The knowledge of this secondary role of logic in legal reasoning would stifle all attempts to substitute formal logical processes for valuation. True legal logic will never foster pseudological argumentation but destroy it. It will uncover fictions and denounce mock problems. This will only be done, however, when legal logic succeeds in freeing itself from that illusion of certainty which is given by a formal logical interpretation of the law. 'For the certainty attained by mechanical application of fixed rules to human conduct has always been illusory.'¹²² For the task of the law is not to produce logically exact but reasonable judgments.¹²³

5. The discussion of the so-called doctrine of legal conclusions obliges us to consider the basic question concerning the limits of formal logical reasoning in legal science. All investigations into the problem of axioms within law and the relationship of logic and teleology are therefore of special interest.

We agree with the unconditional rejection of logicism. Faith in the omnipotence of logical forms is, possibly, nowhere as much out of place as in legal science. A legal science that is merely a technique for the application of fixed rules would fail its purpose. It would share the fate of all positivistic tendencies that perished by the conflict between norms that had become fixed abstractions and social necessities.

But what about an axiomatic system within law?¹²⁴ One thing is indisputable: the introduction of legal axioms would mean to abandon the accidental fragmentary use of logic in legal science. It would mean the attempt at guiding legal science into the channel of an exactly defined and delimited logical system. A system of legal categories grounded on mathematical logic in every aspect would mean a return to the jurisprudence of concepts. The system of

¹²¹ This result corresponds to the arguments of Jensen, *Nature*, especially 13ff., 17.

¹²² Pound, *Introduction*, p. 71; cf. also Ascarelli, *Studi*, p. xxii; Loewinger, *Introducción*, p. 138.

¹²³ Cf. also Lloyd, 64 L.Q.R. (1948) 475.

¹²⁴ The exact presentation of Klug differs here, too, from the far too general attempts made hitherto to work out an axiomatic system of law. Cf., for example, Schlesinger, 10 *RevIntThDr* (1936) 198; García Maynez, *Introducción*, 173ff.; Hofacker, 21 *ArchRuSPh* (1927-28) 38. On the problem of an axiomatic system cf. Viehweg, *Topik*, 53ff.

concepts of the latter would merely be replaced by a closed calculized logical system. In both cases legal science succumbs to the Utopian idea that it has eliminated the necessity of valuation.¹²⁵

An axiomatic system is a system detached from every relationship to practice.¹²⁶ Legal science, however, cannot base itself on abstract, unchanging, and eternally valid axioms.¹²⁷ Axioms in legal science are always the result of a valuation of concrete conflicts of interests.¹²⁸ To abstract legal science from these conflicts would mean making it irrelevant. It can fulfil its task of exercising a creative influence on human society only by settling conflicts. The only purpose of calculization, therefore, can be to serve as a possible means towards the realization of an existent judgment.¹²⁹ Whether the formal logical operation should be used at all can only be decided in each particular case.¹³⁰

The lack of calculization and axioms in legal science is therefore not due to the mathematical origin of the axiomatic method but to its incompatibility with the basic requirement of all legal science, namely the solution of social conflicts on the basis of a valuation of conflicting interests. A calculization is designed to ascertain and maintain a neutrality of judgment by the quality of abstraction inherent in it. Concepts of legal science, however, are to reify such judgments.¹³¹ An axiomatic legal science, freed from values, cannot exist.¹³²

¹²⁵ Cf. also Engisch on this, 12 *Studium Generale* (1959) 86; Esser, *Grundsatz*, 218ff.; Viehweg, *Topik*, 58ff.; Giuliani, *Contributi ad una nuova teoria pura del diritto*, 1954, 95ff.

¹²⁶ Cf. Hilbert-Bernays, *Grundlagen der Mathematik*, vol. I, 1934, p. 2. Most of the axiomatic theories, they argue, cannot refer to practice because they are only 'a simplified idealization of the facts', p. 3: 'Such a theory cannot be justified by reference to either the evident truth of its axioms or experience; it can only be justified in the sense that the idealization performed in theory, i.e. the extrapolation, by which the concepts and principles of the theory exceed the sphere of either perceptible existence or the facts of experience, is shown to be free from contradictions.'

¹²⁷ W. Burckhardt, too, had arrived in a different way at a similar result to that attained by the advocates of an axiomatic legal science, cf. *Methode*, p. 123: 'There is only one plan of the structure of law, just as there is only one method.' Cf. Engisch's case against such arguments, 10 *Studium Generale* (1957) 188; Esser, *ibid.* 12 (1959) 105.

¹²⁸ The cause of this conflict is not a violation of logic, as Ledig seems to think, 4 *RevIntThDr* (1929-30) 91. The real cause lies beyond the realm of formal logic. The conflict of interests is a conflict that takes place within society.

¹²⁹ The basic importance of evaluation was especially stressed by Esser, 12 *Studium Generale* (1959) 105. It is not quite clear what sense there is in working out, with the help of logistics, theoretical constructions without any relation to experience, which Tammelo seems to consider the special merit of a calculized legal logic, 8 *Journal of Legal Education* (1955), 305. This is precisely the danger to be combated.

¹³⁰ Cf. also Engisch, *Logische Studien*, 83f. Viehweg's assertion, *Topik*, p. 54, seems to be too narrow when he says that the legal system is a system 'that is to bring about unequivocal decisions on conflicts by way of deduction'.

¹³¹ Cf. also Engisch, 10 *Studium Generale* (1957) 175, 12 (1959) 83; Esser, *Grundsatz*, 218ff., 267ff., 12 *Studium Generale* (1959) 104; Giuliani, *Contributi*, p. 91; and Maridakis in *Festschrift für Makarov*, 1958, p. 807, who stresses the danger of a purely conceptual reasoning.

¹³² Cf. especially Engisch, 10 *Studium Generale* (1957) 174; 69 *ZStrW* (1957) 621; Ascarelli *Studi*, p. xxix but also Coing, *Geschichte und Bedeutung des Systemgedankens in der Rechtswissenschaft*, 1956, 40f.

The rejection of a calculized system of legal logic implies also the assertion that the function of logic within legal science is exclusively instrumental.¹³³ Logic is one of several ways of fulfilling the task of law, but never a determining factor of this task itself.¹³⁴

Klug, too, accepts the thesis of the instrumental function of logic.¹³⁵ This thesis is further emphasized by the reference to Carnap's principle of tolerance and the liberalizing effect of legal axiomatic. Tolerance and liberalization mean nothing else but that the operations of mathematical logic are not the exclusive method of a single system. They can be made to serve any system and any axiom. Because they are a technical means their use is determined by the axiom. They cannot determine the axioms upon which they are based.¹³⁶

That is why it is not clear how Klug arrives at the conclusion that in spite of all liberalization calculized legal science leads to an apparently absolute idealism in connection with a teleological system of axioms. Ideas and natural law are the central point of the system to be developed.¹³⁷ But the logic of the structure as formal logic cannot indicate the telos of legal order. All formal logic essays to answer the question about the 'how' of the structure of legal reasoning. But it fails to answer the question on what this structure is going to be based. It is, therefore, the task of logic to adjust and order, but never to give meaning to something. It may improve the technique of legal reasoning but it cannot endow norms with a meaning.¹³⁸

Teleology in the sense of calculized teleology seems to mean no longer a choice of purpose, but merely a purposeful calculized whole derived from *a priori* concepts. Legal science thus becomes a perfect technique of deduction from the highest *a priori* principle down to the simplest calculized conclusion. The *a priori* character of the basic principles makes the question about their validity seem superfluous and the strictness of calculus the question about the validity of the individual solution.¹³⁹ Mathematical logic, therefore, becomes

¹³³ Cf. also Tammelo, 8 *Journal of Legal Education* (1955) 302; Patterson, 89; Stone, *Province*, p. 173. This is also clearly expressed by Jensen, *Nature*, especially 27f.

¹³⁴ Cf. also Engisch, 10 *Studium Generale* (1957) 176, who defines logic, therefore, as a structure of thought, a frame and not the basis for deductions. Similarly also Bodenheimer, 104 *Penns.L.R.* (1942) 875 (1956) 1085.

¹³⁵ *Juristische Logik*, 147ff.

¹³⁶ The philosophical aspect of legal logic lies in the connection to the axioms and the selection of adequate means for the solution of problems. If we look at it without this connection and selection, it is only a technical means, a trick and not a calling to mind of the true task, cf. Engisch, *Einführung*, p. 5, 12 *Studium Generale* (1959) 85; also Stone, *Province*, p. 146.

¹³⁷ *Juristische Logik*, 152ff. and the critical remarks by Ackermann, 1 *Ratio* (1957) 1.

¹³⁸ Cf. Engisch, 12 *Studium Generale* (1959) 78ff.; Moor 2 *RevIntThDr* (1927-28) 172.

¹³⁹ Again we arrive at those 'prefabricated' elements of valuation which seem to determine the logically inevitable application of the law of which Esser speaks in 12 *Studium Generale* (1959) 99.

the means of attaining that which the jurisprudence of concepts and positivism of all kinds failed to attain. Calculized legal science is also 'pure' legal science. It replaces concrete valuation by abstract calculus and inherits thereby the 'logical' legal positivism. 'The pattern of circumstances' (Whitehead) makes way for the fixed axiomatic system.¹⁴⁰

Logic thereby eliminates the fundamental questions of legal science. The problem of the origins and conditions of development of legal principles is circumvented.¹⁴¹ Legal principles are no longer seen in their relationship to the reality which they are supposed to shape, but presupposed as uncontrollable quantities.¹⁴²

At this point logic ceases to be relative and becomes absolute. The dependence of formal elements on substance in the service of which they must always be, is no longer recognizable.¹⁴³ The formal element takes the place of the material. The reproach of relativism should not mislead us to such conclusions. In relation to formal logic relativism is not a reproach but an exact circumscription of a quality of formal logic. Formal logic can be absolute only within the boundaries set by a concrete telos, i.e. within the framework of the concrete problems to be solved.

The true relationship of formal logic to legal science cannot be found, therefore, in the development of a system of legal philosophy but — to re-emphasize this point — only in the instrumental function of logic.¹⁴⁴ It is the means of realizing material decisions.¹⁴⁵ It can never, therefore, replace these decisions.¹⁴⁶ The analysis of substance is a necessary supplement to logical reasoning.¹⁴⁷ Legal science needs this method of questioning in order to hold its ground in a particular epoch and to cope with its socially conditioned tasks. As soon as the

¹⁴⁰ Cf. on this also Scarpelli, *Filosofia analitica e giurisprudenza*, 1953, 57ff. This appeared already in Felix Kaufmann's *Logik*, 49ff., 89ff., 122ff., very clearly. It seems to be, indeed, a tendency among all those who strive for a 'mathematization'. Cf. also Giuliani, *Contributi*, p. 91.

¹⁴¹ Cf. Esser, 12 *Studium Generale* (1959) 99ff., *Grundsatz*, p. 239. Only in this connection does M. Müller's remark, *Sein und Geist* (1940), that legal science cannot say what 'the rightness of law is' apply.

¹⁴² Already F. Kaufmann emphasized in his *Logik*, p. 127, that: 'The aim of legal efforts is to reduce legal terms to an a-legal minimum.'

¹⁴³ Cf. F. Kaufmann, *Logik*, 89ff.

¹⁴⁴ Cf. also Apeldoorn, *Inleiding*, p. 340: 'The lawyer must not forget, that he is a servant of law and not of logic, which has to be his servant and not his master.'

¹⁴⁵ Cf. Stone, *Province*, p. 140; Brusiin, *Juristisches Denken*, 113f.

¹⁴⁶ Cf. Pound, *Introduction*, p. 72: 'A systematist who would fit the living body of the law to his logical analytical scheme must proceed after the means of Procrustes.' This is not considered by Tammelo, 8 *Journal of Legal Education* (1955) 279. In sociological research on the substrata of law, too, logic is only of instrumental value.

¹⁴⁷ Engisch's observations point to that, too, in 12 *Studium Generale* (1959) 76ff. Cf. also Burckhardt, *Methode*, p. 7; Kraft, 9 *RevIntThDr* (1935) 280: 'Knowledge of a matter is not necessarily confined to its logic alone ... a logistic theory therefore, cannot be without contradictions, i.e. be constructed according to its own standards ...'; Stone, *Province*, p. 138.

material elements are no longer taken into consideration, legal science cannot find the way towards a concrete, realistic method of stating the problems. It turns into a system of unreal, abstract theses.¹⁴⁸ Then it is no longer surprising when 'in any contact between life and logic it is not logic that is successful'.¹⁴⁹

The critical examination of Klug's ideas should not be understood as meaning a rejection of the use of logic, classical or mathematical, in legal science. To realize that formal logical reasoning is necessarily incomplete does not mean that material reasoning is perfect.^{149a} We have to thank Klug for his attempt at a proof that mathematical logic can be made to serve a purpose in legal science. His work has the merit of having prepared the ground for further research.

V

1. Law is rational. Reason is the basis of all logical reasoning.¹⁵⁰ Legal science can, therefore, not afford to do without logic.¹⁵¹ Feelings and emotional factors are useless as standards for a legal system. Legal thought, however, can be rational only when logical operations are related to the social substratum of law, i.e. to the *telos* legal rules are to serve.¹⁵²

In turning from classical to mathematical logic, however, the possibly most important element in Aristotelean teachings, the knowledge of the ties that bind all logical reasoning to reality has often been overlooked.¹⁵³ The value of a conclusion in legal science depends on the existence or non-existence of a relationship to reality.¹⁵⁴ Consideration of the object, therefore, is the basic presupposition of successful legal logic.¹⁵⁵ Legal logic is not the field of

¹⁴⁸ Herein lies that fallacy of the logical form, of which Holmes speaks, 10 *Harv.L.R.* (1897) 457, cf. also Stone, *Province*, 149ff.; Moor, 2 *RevIntThDr* (1927-28) 182; Tammelo, 8 *Journal of Legal Education* (1955) 302. In order to meet this danger, Engisch suggests to develop a 'material logic' which would be founded on the interrelationship of form and matter, 12 *Studium Generale* (1959) 82f.

¹⁴⁹ H. Laski, *Studies in the Problem of Sovereignty*, p. 201.

^{149a} Cf. especially Ackermann, 1 *Ratio* (1957) 4.

¹⁵⁰ Cf. Sir John Powell, *Coggs v. Bernard*: '... nothing is law that is not reason'. 2 *Ld Raym.* 911; Scheuerle, *Rechtsanwendung*, 146f.; Reinhardt-König, *Richter und Rechtsfindung*, 1957, p. 28. Spendel in *Beiträge zur Kultur- und Rechtsphilosophie*, 1948, 68ff.

¹⁵¹ Cf. E. Huber, *Recht und Rechtsverwirklichung*, 1925, pp. 356, 377; W. G. Becker, 18 *U.Chi.L.R.* (1950-51) 400; Levi, *Introduction*, p. 73. Cook, 31 *Col.L.R.* (1931) 108; Loevinger, *Introducción*, p. 140.

¹⁵² Cf. also Brusiin, *Juristisches Denken*, 113ff.; Jensen, *Nature*, xiii, 17f., 35ff.

¹⁵³ Cf. Aristotle, *Met.* 7051^b: 'οὐ γὰρ διὰ τὸ ἡμᾶς οἰεσθαι ἀληθῶς σέ λευκὸν εἶναι εἰ σὺ λευκός, ἀλλὰ διὰ τὸ σέ εἶναι λευκὸν ἡμεῖς οἱ πάντες τοῦτο ἀληθεύομεν.'

¹⁵⁴ Cf. also Engisch, *Logische Studien*, 37ff.; Esser, 12 *Studium Generale* (1959) 104.

¹⁵⁵ Or, in other words, in contrast to the mathematical method it is important for the legal method to observe above all the 'executive' and not the 'relative' meaning, cf. O. Becker, *Grösse und Grenze der mathematischen Denkweise*, 1959, p. 161. Cf. also Dias-Hughes, *Jurisprudence*, 1957, p. 18; Horvath, *Rechtssoziologie*, p. 23; Engisch, *Die Idee der Konkretisierung in Recht und Rechtswissenschaft unserer Zeit*, 1953, pp. 1ff., 50ff.; 12 *Studium Generale* (1959) 78f. The problem of the 'logical patterns of the matter' is relevant here, too, cf.

operation of arbitrarily exchangeable formulas of axiomatic. Here it is absolutely impossible to separate the predicate from the content.¹⁵⁶

2. If we try to delimit the application of mathematical logic within legal science, considering all the above observations, we meet with many difficulties. In the rare literature on the influence of mathematical logic on legal science there is, as far as I know, only one essay that tries to quote practical examples to show the importance of mathematical logic: an article by John Pfeiffer on 'Symbolic logic'.¹⁵⁷ Pfeiffer refers to a number of investigations which the mathematician Edmond C. Berkeley had made for the Prudential Life Insurance Company. With the help of mathematical logic Berkeley succeeded in solving problems concerning the rearrangement of premium payments by policyholders. Another field of application of mathematical logic might be the general conditions of contracts. With the help of mathematical logic they could be examined as to their completeness and consistency.

This assertion about the value of mathematical logic, however, applies only to standardized mass-contracts. Logical analysis is here closely connected with standardization.¹⁵⁸ Mathematical logic, however, is not *eo ipso* applicable to individual contracts.

Furthermore, we cannot disregard the fact that insurance business is concerned for the most part with either purely mathematical or administrative and economic problems, problems which are important to legal science but lie outside of its competence. The value of mathematical logic cannot be verified in spheres beyond the limits of legal science or in disciplines that are marginal to legal science, but only in the core of legal reasoning, namely in interpretation.

3. An examination of the problem of the limits of mathematical logic in legal science points to the fact that the way out of the discordant situation of present-day logic cannot be found in one-sided attachment to one or other form of logic.

Mathematical logic has, after all, not only claimed to be a new

Welzel, *Naturrecht*, p. 197f.; Stratenwerth, *Das Problem der Natur der Sache*, 1957, 13ff.; Scheuner, *Recht und Institution*, 1956, 36, 45. This is not realized by Oppenheimer, 11 *Philosophy of Science* (1944) 142ff.

¹⁵⁶ Cf. also Engisch, 10 *Studium Generale* (1957) 176; Esser, *Grundsatz*, p. 112; Stone, *Province*, p. 142. E. Lask already remarks that we should not venture so far as to understand 'the logical things in law in any other way than in its combination with practice', *Festschrift für K. Fischer*, 1905, 44f.

Cf. also Reinhardt in Reinhardt-König, *Richter*, p. 10, who says that the practical value is decisive in law: Stone, *Province*, p. 138; Engisch, 12 *Studium Generale* (1959) 78.

That is why Engisch points out that what matters is the concrete situation to which the logical conclusion must be applied, *Logische Studien*, p. 38. Cf. also 12 *Studium Generale* (1959) 82.

¹⁵⁷ *Scientific American*, December 1950, 22ff.

¹⁵⁸ On the problem of type in legal science cf. Engisch, *Konkretisierung*, 237ff.

form but, beyond this, the only admissible form of formal logic.¹⁵⁹ If Leibniz and Boole¹⁶⁰ still considered Aristotelean arguments in their pure form very important, the disciples of mathematical logic later on arrived at a more critical and depreciatory valuation of classical logic.¹⁶¹ If legal science were to subscribe to this view, it would be forced to abandon classical logic in favour of a complete adoption of mathematical logic.¹⁶² But legal science cannot pursue that way. It clearly cannot do without logic, nor can it persevere in a one-sided rejection of mathematical logic.

For legal logic there seems therefore to exist only one uniform logic with various forms of application.¹⁶³ The applicability of classical or mathematical logic is thus not a question that can be decided generally once and for all, but a problem that must be formulated anew for each particular case.¹⁶⁴ Only the specific requirements of the particular case can determine the form of logic that is to be applied.¹⁶⁵

4. Classical and mathematical logic can, therefore, render valuable service to legal science. The problem lies in the right combination of the various forms of logic.¹⁶⁶ Legal logic is impossible without this combination. Legal science requires a *novum organum dialecticum* that is characterized by the unity of logical reasoning and not by the claim to exclusiveness of an individual form of logic.¹⁶⁷

It is the task of legal logic to prevent legal order from becoming a disconnected juxtaposition of varied norms. Only if this task is fulfilled can the decision on each particular case be an application of the entire legal order.¹⁶⁸

¹⁵⁹ Cf. especially Bernays, 21 *Journal of Symbolic Logic* (1956) 205.

¹⁶⁰ Cf. Boole, *The Mathematical Analysis of Logic*, reprint 1948, p. 4.

¹⁶¹ Mathematical logic delivers 'the death-blow to a pining anaemic classical logic', says Carnap in *Abriss der Logistik*, 1929, p. 1. Cf. in contrast Lukasiewicz, *Aristotle's Syllogistic from the Standpoint of Modern Formal Logic*, 1951, especially iff., 7, 20ff., 67ff.; W.V.O. Quine, *Mathematical Logic*, 1951, p. 1; Ackermann, 1 *Ratio* (1957) 2.

¹⁶² Cf. on this dilemma Engisch, 12 *Studium Generale* (1959) 80.

¹⁶³ Cf. also Engisch, 12 *Studium Generale* (1959) 80. It is not clear which results Tammelo aims at, 8 *Journal of Legal Education* (1955) 279. Giorgianni fails to see this, 30 *RivIntFD* (1953) 462ff.

¹⁶⁴ Similarly also Engisch, 12 *Studium Generale* (1959) 80f.

¹⁶⁵ Cf. Magni, 61 *Il Diritto ecclesiastico* (1950), 234. It is also an expression of the plurality of system in legal science of which Viehweg, *Topik*, p. 59, speaks.

¹⁶⁶ Cf. Engisch, 12 *Studium Generale* (1959) 80f.

¹⁶⁷ Cf. also Engisch, 12 *Studium Generale* (1959) 80.

¹⁶⁸ Cf. Heck, *Begriffsbildung und Interessenjurisprudenz*, 1932, p. 107; Engisch, *Einheit*, p. 26, *Einführung* p. 65; Stammler, *Theorie*, p. 24f.: 'As soon as we apply a paragraph of the law, we apply the whole code'; Goldschmidt, 3 *ÖstZöfR* (1950) 194; Cossio, *El derecho en el derecho judicial*, 1946, 111.

This also bans the danger of an authoritarian dogmatism. Cf. Kraft, 3 *RevIntThDr* (1928/29) 56: 'The positive overcoming of authoritarian dogmatism is thus guaranteed by the observation of logical consistency, for the striving after freedom from contradictions opens the way for experience and philosophy, and clears the path for pure science, in the negation of which lies the nature of dogmatism.'

The danger lies in a logicized legal science, the task in the logical consistency of a well-ordered system of legal reasoning. If we succeed in realizing this task, a legal science free from hypostases, mock legal problems and fictions will eventually be attained.

(Translated from the German)

WHAT ACHILLES SHOULD HAVE SAID TO THE TORTOISE

By J. F. THOMSON

In 1895 Lewis Carroll published in *Mind*¹ a brief dialogue, 'What the Tortoise said to Achilles'. The intention of the story is, plainly enough, to raise a difficulty about the idea of valid arguments, a difficulty similar, or so Carroll implies, to Zeno's difficulty about getting to the end of a race-course. Different writers have said different things, usually briefly, about what the difficulty is. Let us first consider just what happens in the story and then try to see what problems it raises.

The topic of the story is a certain task set to Achilles. The Tortoise says that there might be someone who accepted the two propositions:

(A) Things that are equal to the same are equal to each other, and

(B) The two sides of this triangle are things that are equal to the same,

but did not accept

(C) If things that are equal to the same are equal to each other, and if the two sides of this triangle are equal to the same, then the two sides of this triangle are equal to each other.

Such a person, he says, would not *as yet* (Lewis Carroll's italics) be under any logical necessity to accept the consequent of C, namely

(Z) The two sides of this triangle are equal to each other.

He asks Achilles to pretend that he is such a person and to force him, 'logically', to accept Z. Since it is Achilles' failure to do this which is the point of the story, we must ask how his failure comes about.

Achilles sets about his task in an unexpected way. You might expect him to begin by trying to find out why the Tortoise does not accept C. Instead, he asks him to accept C, i.e. asks him to accept that very proposition which he has just said he does not accept. You might now expect the Tortoise to laugh, or to be surprised, or at least to say: 'But I don't accept C, or so we are pretending.' Instead he grants the request, or says he does, and for no other reason than that he has been asked to. He is now on record as having accepted A, B, and C. And now, Achilles says, he must accept Z. 'If you accept A and B and C, you *must* accept Z ... because it follows

¹ *New Series*, vol. IV, pp. 278-80.

logically from them.' The Tortoise replies in effect that just as there might be someone who did not accept the hypothetical C which connects A and B with Z so there might be someone who did not accept the hypothetical, call it D, which connects A and B and C with Z, and that such a person might accept each of A and B and C and still not accept Z. When Achilles asks him to accept D he does so, just as he accepted C, and the story goes on as before. Apparently the end of this 'ideal race-course' is never to be reached.

To see clearly what is happening, let us relabel the propositions involved. The original premises A and B we can collapse into one conjunctive premise C_0 . The first hypothetical C we shall sometimes call ' C_1 ', the second, D, ' C_2 ', and so on. The hypothetical with antecedent X and consequent Y we shall call ' $X \rightarrow Y$ '. Then the sequence of propositions successively accepted by the Tortoise is

$$\begin{aligned} C_0 &= (A \ \& \ B) \\ C_1 &= C_0 \rightarrow Z \\ C_2 &= (C_0 \ \& \ C_1) \rightarrow Z \\ C_3 &= (C_0 \ \& \ C_1 \ \& \ C_2) \rightarrow Z \end{aligned}$$

etc. The sequence is generated by the rule that the first term is $(A \ \& \ B)$ and each term thereafter is the hypothetical whose antecedent is the conjunction of the preceding terms and whose consequent is Z. The behaviour of the Tortoise also follows a simple inductive rule. He accepts the first term of the sequence. At each stage thereafter, having accepted C_0, C_1, \dots, C_n , he refuses to accept Z on the grounds that he has not yet accepted C_{n+1} , is asked to accept this one, does so, and the game goes on as before.

It is plain that as long as this procedure is adopted he will never be brought to accept Z. If at *every* stage Z is not to be accepted until some *other* proposition is accepted, Z will never be accepted. But the sensible reader will ask: 'So what?' Why should this procedure be adopted in the first place? How does, why should, an infinite sequence of hypotheticals C_1, C_2, \dots get into the picture?

The Tortoise represents himself as someone who accepts A and B but not C and he says that, being in this position, he is not *as yet* under any logical necessity to accept Z. This is wrong. Whether or not he accepts C, it is logically true. That means that the argument from A and B to Z is logically valid and that the Tortoise in accepting A and B commits himself to accepting Z. So he is already under a logical necessity to accept it. To say that he is not ('as yet') is precisely to deny that the argument ' $A, B, \therefore Z$ ' is logically valid. But if that were true there would be no problem; we should not expect Achilles to be able *logically* to force the Tortoise to accept Z on the basis

of an invalid argument. It may be objected that the Tortoise is justified 'from his own point of view' in saying that he can accept A and B without accepting Z. The reply is that this point of view is a mistaken one and Achilles' task is precisely to make him give it up. How can he do that? He must first find out why the Tortoise does not accept C. Someone who was really unwilling or unable to grant the truth of this proposition would either have some reason, perverse or ingenious or both, for thinking it false or doubtful, or he would not have considered sufficiently carefully just what proposition it is. Perhaps there are other possibilities. But anyway Achilles must ask the Tortoise to show at least part of his hand. If the latter's pretence not to see that C is true is to be considered at all it must be taken seriously.

What Achilles does in the story is quite different. In effect he says: 'So you don't accept C. Well then, will you accept C?' To make such a request in such circumstances is ridiculous, and to accede to it is ridiculous too. Achilles makes it because, as he himself says, if you accept A and B and C you must accept Z — 'it follows logically from them'. But this is a bad reason. In saying that Z follows from A and B and C Achilles implies that it does not follow from A and B alone, he implies that these premises are not by themselves sufficient. He thus accepts the implications of the 'not as yet' and so makes a nonsense of his acceptance of the idea that he should ('logically') force the Tortoise to accept Z. And anyway in so far as the latter is justified, 'from his own point of view', in not accepting Z, he would be justified also in refusing to accept C. He could say: 'Of course if I accept C I shall then have to accept Z, but that is not in question. You are trying to get me to accept Z. You can do that by presenting me with an argument which I see to be valid and which has premises which I am able to accept. I don't accept that the argument "A, B, \therefore Z" is valid. So, as you should have foreseen, I can't accept C. So I can't accept all the premises of your second argument, "A, B, C, \therefore Z". From the point of view of establishing its conclusion, a valid argument with false premises is no better off than an invalid one. In your case the falsity of the false premise in the second argument follows directly from the invalidity of the first. So not only does the second argument give me no more reason to accept Z than the first one did, but there is just the same lack of reason in each case.'

Given an argument with premises P_1, P_2, \dots, P_k and conclusion Q let us call $(P_1 \& P_2 \& \dots \& P_k) \rightarrow Q$ the hypothetical *associated with* that argument, and let us call the argument with the same conclusion and premises $P_1, P_2, \dots, P_k, (P_1 \& \dots \& P_k) \rightarrow Q$ the *strengthened form* of the original argument and a strengthened argument. An argument may fail to establish its conclusion on either or both of two counts; it may

have one or more false premises, and, independently, the relation required to hold between the premises and the conclusion may not hold. It is clear that a strengthened argument will always be valid and so will never fail on the second count, and that if an argument fails on any count its strengthening must fail on the first of them. In particular, if an argument fails by not having enough premises its strengthening will escape that weakness but must, just because it is the strengthened form of that argument, fail by having an unacceptable premise. It follows that from the point of view of getting arguments which establish their conclusions the operation of strengthening is either redundant or futile.

We need not be inhibited from accepting this by feelings of loyalty to the old idea that some arguments have suppressed premises. Certainly, if the argument 'P, \therefore Q' can have a suppressed premise, why should it not have the suppressed premise $P \rightarrow Q$? About the idea that arguments do have suppressed premises, a good deal needs to be said, but it does not need to be said here. For arguments which are said to have suppressed premises are said to be valid in virtue of having them, and valid arguments do not need to be strengthened. In other words, if we wish to say that an argument has suppressed premises we must take this seriously and really count the suppressed premises among its premises. (The observation that strengthening is either redundant or futile is quite independent of the question whether 'valid' must always mean 'logically valid' or whether logically valid arguments are just a sub-class of valid arguments.)

All this, then, or part of it, is what the Tortoise could have said in reply to Achilles' request that he accept C. Instead, he accedes to the request and still does not accept Z. But is this inability the old inability in a new guise or is it a new one? Whether Lewis Carroll realized the fact or not, it is a new one. The failure to see the truth of C is, roughly speaking, a failure to appreciate the transitivity of the relation *sameness of length*. The failure to see that C₁ is true is a failure to appreciate the logical force of *if*. If there could be someone who thought that C₁ was false or doubtful, he might well be, and probably would be, someone who at once saw the truth of C₂. So at this second stage of the game the Tortoise has changed his ground. He began by representing himself as someone who could not accept a certain hypothetical. He now pretends to have accepted that hypothetical and represents himself as someone who does not see the truth of a quite different hypothetical. (And in a moment he will change his ground yet again; he will pretend to accept C₂ and will make difficulties over C₃. But these later subterfuges are not very interesting.)

We now see how the infinite sequence of hypotheticals gets into the story. When he says that someone who accepts A and B but not C is not *as yet* under any necessity to accept Z, the Tortoise implies not only that the premises A and B are not sufficient but also that A and B and C would be, and also that he sees that this is so. When having accepted C he shifts his difficulty to C₂ he implies that if only he were able to accept that one he would be able to accept Z. So at each stage he introduces a new hypothetical into the discussion and tempts Achilles to ask him to accept it. The sequence of hypotheticals introduced in this way is infinite because however many premises he accepts he pretends not to see that there are enough.

We have also answered the question why Achilles fails in his task. His first mistake is in asking the Tortoise to accept C. By doing this he implies that he is not after all in any position to force him, logically, to accept Z. But if we think that his failure is a punishment for that mistake, we must be clear that the punishment does not fit the crime. For the Tortoise ought not to have acceded to the request and having acceded to it he ought to have accepted Z. So the second thing to be clear about is that the Tortoise cheats. Instead of presenting Achilles with just one problem he presents him with infinitely many; though this is concealed by the fact that Achilles does not really try to solve any of them.

The extreme eccentricity of the behaviour of both of the characters may well make us wonder whether Lewis Carroll knew what he was up to in writing the story. Certainly it cannot be merely taken for granted that he intended to advance some moderately clear thesis or theses about inference but chose to do so in a veiled and cryptic way. It is just as likely that the story is the expression of a perplexity by someone who was not able to make clear to himself just why he was perplexed. But we may still ask what points of logical interest emerge from it. I shall mention just two.

We say that if a triangle is isosceles the angles at the base must be equal, that if Tom is older than Dick and Dick older than Harry then Tom must be older than Harry. More generally we say that if such-and-such it must be the case that so-and-so. This use of 'must' is a signal that something is being claimed to follow from something else. But we also say: if you accept that such-and-such then you must accept that so-and-so. This use of 'must' can be misunderstood. 'I accept A and B and C and D', says the Tortoise at one point. 'Suppose I still refuse to accept Z?' 'Then Logic would take you by the throat and *force* you to do it', Achilles replies. But Logic does no such thing.

'If you accept the premises of a logically valid argument, you must

accept its conclusion.' Well, *why* must he? — This statement does not mean that if someone does accept the premises of such an argument he will accept its conclusion, let alone that he will necessarily accept it. He may accept the premises without knowing or without noticing that they are the premises of a logically valid argument with that conclusion. Even when the argument is put before him he may be unable to understand it or unwilling to try. Or he may not see that it is valid, or may think that it contains such-and-such a fallacy. He may even say: 'Since the premises are true and the conclusion false the argument must be fallacious, though I can't for the moment see where the fallacy is.' Even when he has seen and examined the argument and convinced himself that it is valid he may still not accept the conclusion, since he may prefer to retract his acceptance of the premises. What is true is that in accepting the premises he *commits* himself to acceptance of the conclusion. Why? Because what we are here calling the conclusion is something that follows from premises which he accepts. But why then does acceptance of a set of premises commit one to acceptance of their consequences? This question can be regarded only as a request for an explanation of the notion of a consequence and of a logically valid argument or as an occasion to remind someone of what these notions are. Part of this explanation is that the set consisting of the premises of a logically valid argument and the negation of its conclusion is logically self-inconsistent and so must contain at least one falsehood. So anyone who accepts the premises and denies the conclusion has committed himself to at least one falsehood. This is the threat behind the 'must'. 'If you assert the premises and deny the conclusion, you will have said at least one false thing, however the facts may turn out to be.'

'If you accept these propositions you must accept that one' — this is characteristically said by someone who is trying to get his hearer to accept something. So it is said by someone who is or has been arguing. Then we may suppose that an argument has been put forward and that the hearer is or has been or soon will be examining it. But when the speaker says what he says he is only saying that the argument is valid. It follows that although this remark is typically made by someone who is arguing it is not itself a piece of an argument. It is one thing to put forward an argument, even a valid one, and another to say that you are arguing validly. It is one thing to propose for acceptance propositions which (you hope or believe or know) entail another proposition and another thing to say that they do. In arguing, you may need to point out that you are. You then (as it were) step aside from what you are doing and comment on

your own performance. But then the performance must be there, independently of the comment, to be commented on.

The proposition that such-and-such an argument is valid can itself be a premise of an argument². But it cannot be a premise in the argument to which it refers. If you want to say of some argument that it is valid you must be able to say what argument it is that you want to make this claim for. The argument must be identifiable. And the identification must be such as to allow the claim that it is logically valid to be assessed. To assess that claim we need to know what the premises are and what the conclusion is. So the premises must be identifiable independently of the claim that there are enough of them.

What has just been said about the statement that the argument 'P₁, ..., P_k, ∴ Q' is logically valid must hold also of the statement that if P₁ and P₂ and ... and P_k then necessarily Q. For the latter statement is logically equivalent to the former. It does not matter that the former argument is explicitly about an argument and the latter not. Just as the statement that an argument is logically valid cannot turn out to be a premise in that argument, so, and indeed very obviously, a hypothetical cannot turn out to be its own antecedent or a conjunct in its own antecedent. So if, having got you to accept premises P₁ to P_k and wanting you now to do what I think you are committed to doing, viz. accept Q, I assert that if P₁ and ... and P_k then necessarily Q, I am not, or should not regard myself as, asking you to accept another premise. For *ex hypothesi* I suppose that you already have enough premises.

To say this is not to deny that some arguments have hypotheticals as premises and have them as premises in just the way they have other premises³. Someone who, having put forward some premises, puts forward a hypothetical having the conjunction of those premises as its antecedent may very well intend the hypothetical to be counted as another premise. If what is in question is the validity of your argument, it is up to you to say what its premises are. You may list as the set of premises enough to make it logically valid, and you may, either knowingly or unwittingly, list some that are redundant. All that is being said is that if you list your premises and all of your premises and then assert what we called the hypothetical associated with the argument whose premises these are, that hypothetical just cannot turn out to be one of the premises already listed. This rests on the fact that a hypothetical cannot be a conjunct in its own antecedent,

² For example, an argument designed to show that such-and-such a book contains exactly one valid argument.

³ At least one writer on the story has been led to deny this. See D. G. Brown, 'What the Tortoise taught us', *Mind*, vol. LXIII (1954), p. 179.

and this rests in turn on the fact that no sentence which expresses a proposition can be longer than it is. It is therefore very obvious. But it is enough to clear up one of the misunderstandings in the story. When Achilles said that if you accept A and B and C you must accept Z he was claiming that the argument that since A, B, and C, therefore Z was logically valid, had *enough* premises, and so was not, or should not have regarded himself as, offering *another* premise.

So the first point of interest is that we must distinguish between arguing and talking about an argument, between giving reasons, even good ones, and saying that some reasons are good ones. In particular, if someone in arguing asserts a hypothetical and makes it clear, by using some such signal-word as 'must' or 'logically' or 'necessarily', that he regards it as necessarily true, he may be offering a premise and he may be doing something equivalent to commenting on a set of premises already identifiable. What he cannot be doing is both at once.

The second point is connected with the first. Before we can hope to understand what is going on between Achilles and the Tortoise we must be clear that to assert the truth (logical truth, or acceptability, or reasonableness, etc.) of a hypothetical is equivalent to asserting the validity (logical validity, or cogency, etc.) of the argument with which that hypothetical is associated. It follows that to accept the hypothetical is to commit oneself to accepting the validity of the argument. But what is it to accept the validity of an argument? One thing that shows that you accept it is that if you assert the premises you are willing to go on and say 'therefore' and then assert the conclusion. But then suppose that someone claims to accept the hypothetical and to accept the premise but is not willing to assert the conclusion? How can we get him actually to do what he is committed to doing, i.e. accept Q? It is natural to think of pointing out to him that Q follows logically from P and $P \rightarrow Q$, and this thought may then seem suspect for something like the following reason: we began by wanting him to accept the argument 'P, \therefore Q' and now seem to be trying to get him to accept the (different) argument 'P, $P \rightarrow Q \therefore$ Q'; what if he will not accept this one either, shall we then have to start again? The suspicion is dispelled when we reflect that the latter argument really *is* different from the former one, so that someone might accept it and not accept the former. We must also remember that when we claim validity for the latter argument we are not, or at least should not regard ourselves as, arguing that since it is valid so is the original one. Such an argument would be fallacious. Strengthened arguments are always valid. So the second point of interest is that logically valid arguments are of different kinds. Consider for example

the three arguments 'A, B, \therefore Z', 'A, B, C, \therefore Z' and 'B, \therefore Z'. The first is formalizable in first-order predicate logic with identity. The second is formalizable in truth-functional logic and in any one of a large number of weaker systems of propositional logic. The third, though logically valid, is not formally valid at all.

We naturally feel a reluctance to admit that someone could accept A, B and C and not accept Z. Behind this is the fact that if someone claims to accept the premises of a *very* simple argument and does not accept the conclusion it is sometimes reasonable to suppose that he has not really accepted the premises⁴. That is, we sometimes make it a necessary condition for someone's having accepted a set of propositions that he accepts such-and-such consequences of them. No general rules can be given for when this is reasonable, but it is probably a mere prejudice to think that the difficulty arises especially over 'A, B, C, \therefore Z' and does not arise at all over 'A, B, \therefore Z'. But the important point is that it is not the Tortoise's refusal to accept Z at the second stage that shows that Achilles was silly to offer him C as a premise at the first stage; even though Achilles was silly to do so, for reasons we have seen. What that refusal shows is rather something about the Tortoise.

In conclusion I should like to comment briefly on some remarks about the story in Professor G. Ryle's paper *If, So, and Because*.⁵ Ryle is here considering the question: How does the validity of the argument 'P, \therefore Q' require the truth of the hypothetical $P \rightarrow Q$? He discusses among others the following answer: 'The argument is always invalid unless the premise from which Q is drawn incorporates not only P but also $P \rightarrow Q$. Q follows neither from $P \rightarrow Q$ by itself, nor from P by itself, but only from the conjunction P and ($P \rightarrow Q$).' Ryle comments on this idea as follows: 'But this notoriously will not do. For, suppose it did. Then a critic might ask to be satisfied that Q was legitimately drawn from P and ($P \rightarrow Q$); and to be satisfied he would have to be assured that if P and also if P and Q then Q. So this new hypothetical would have to be incorporated as a third component of a conjunctive premise, and so on for ever — as the Tortoise proved to Achilles. The principle of an inference cannot be one of its premises or part of its premise. Conclusions are drawn from premises in accordance with principles, not from premises which embody those principles.'

It seems that what Ryle calls the principle of an inference is either what we have called the hypothetical associated with the argument or some statement or formula of which that hypothetical is an exem-

⁴ See the paper cited in the previous footnote.

⁵ In *'Philosophical Analysis'* edited by Max Black, New York, 1950.

plification or a general proposition of which the hypothetical is a particular case. In each of these cases his statement that the principle cannot be one of the premises or part of its premise is clearly correct. It is hardly necessary to repeat the argument: the 'principle' of the argument ' $A, B, \therefore Z$ ' is, roughly speaking, the principle that a certain relation is transitive; if we strengthen that argument by adding the appropriate hypothetical as a redundant premise the new argument has a quite different principle. But, more or less clearly implicit in what Ryle says, there is the suggestion that Achilles fails in his task because he does not distinguish premises from principles, and, coupled with it, the idea that the necessity for this distinction can be demonstrated by means of a regress-argument. This does not seem correct.

We must notice first that the suggestion which Ryle is attacking is much more seriously confused than his comment on it brings out. For how in it are the letters 'P' and 'Q' being used? If they are constants we can hardly be expected to assess the idea that the argument ' $P, \therefore Q$ ' is not as it stands valid, since we have not been told what propositions P and Q are. But if they are variables, the suggestion comes to this: no argument is valid, but, given an argument, which will of course be invalid, we can always obtain from it an argument (its strengthened form) which will be valid. And while it is absurd to hold that no arguments are valid, it is doubly absurd to hold this and then say that some arguments can be made valid. If for no values of 'P' and 'Q' does P yield Q, then, in particular, P & $(P \rightarrow Q)$ does not yield Q, since P & $(P \rightarrow Q)$ is just one value of 'P'.

So, to dismiss the suggestion, we need only be clear what it comes to, and we do not need to invoke a regress-argument. But it is not clear either that we are entitled to do so. The suggestion that we are depends upon thinking that if someone cavils at the argument ' $A, B, \therefore Z$ ' on the grounds that C is not one of its premises he is somehow committed to cavilling at ' $A, B, C, \therefore Z$ ' because C_2 is not one of *its* premises. But this is just wrong. If someone had a prejudice in favour of truth-functionally valid arguments he would be consistent in rejecting the first argument as invalid and then accepting the second. A critic who then asked to be satisfied that Z was legitimately drawn from A, B, and C would be shown a truth-table and that would be that. So there is no force in Ryle's suggestion that 'this new hypothetical (here, C_2) would have to be incorporated as a third component of a conjunctive premise'.

If all this is correct, then what is most usually taken to be established by the story, namely that we must not try to make the

'principle' of an inference one of its premises, on pain of running into an infinite regress, is wrong, and is not established by the story. What people who say this mean by taking the principle as one of the premises turns out to be what we called strengthening, and strengthening does not run us into a regress. The mistake of supposing that it does comes partly from failing to notice that the Tortoise changes his ground, shifts his difficulty, at the second stage. It is true that if someone thinks that every argument needs to be strengthened he will think or be committed to thinking that every argument is invalid, but to expose this we do not need to invoke a regress argument anyway. Neither does any such argument help us in seeing what needs to be seen, the way in which strengthening is either redundant or futile. The infinite regress is just an infinitely long red herring.

REVIEWS

Words and Things: A Critical Account of Linguistic Philosophy and A Study in Ideology by ERNEST GELLNER. Introduction by Bertrand Russell. London: Victor Gollancz, 1959. Pp. 270. 25s.

This book has aroused strong and conflicting emotions. Bertrand Russell considered it worthy of an enthusiastic introduction, whereas the Editor of *Mind* considered it unworthy of review in his journal. I doubt whether, given the nature of the book and the public controversy which followed its publication, it is really possible to give it a genuinely impartial review now. What I can do is to warn the reader of the bias from which this review is written. I am, broadly speaking, on Mr. Gellner's side; I, too, find Linguistic Philosophy to be, by and large, at once esoteric and boring, and I consider the remarkable popularity and size of the linguistic movement in post-war England to be unjustified by its meagre results. So much for my bias. Before proceeding to the book I will make one comment on the editorial decision which provoked a lengthy correspondence in the *London Times*. The Editor of *Mind* stated in a letter to *The Times* that the book makes more than one hundred imputations of disingenuousness against identifiable philosophers. Whether or not this statement justifies his editorial boycott, I think that there can be no doubt that the statement itself is justified. The main theme of Mr. Gellner's attack is that Linguistic Philosophy is an inherently defensive movement with built-in procedures for evading outside criticism, and he illustrates this theme with more than one hundred examples. Mr. Gellner does not assert that Linguistic Philosophers are *deliberately* disingenuous: he continuously suggests that it is their system which makes them so. He compares the defensiveness of Linguistic Philosophers to that of Marxists and psycho-analysts. If a hostile critic of Marxism were to offer more than one hundred examples of Marxist apologists warding off cogent criticisms by invoking Dialectical Logic, the Marxist sociology of knowledge, and the catastrophic slump which is for ever on the verge of materializing, then Marxists could state quite justifiably that this critic had made more than one hundred imputations of disingenuousness — even though it was not so much the personal morality of individual Marxists as the ethos of their movement which was under attack.

Mr. Gellner makes three main charges. First, many of the ideas behind the practice of Linguistic Philosophy are not plainly stated but are hinted at, or taken for granted, or insinuated, in an esoteric way. Thus he is obliged to do the work of piecing together these elusive ideas into a system himself, since 'it seems to me unlikely that an adequate account of it can be expected from those who subscribe to it' (p. 17). Unfortunately, the fact that he is criticizing a largely inexplicit system of ideas automatically exposes him to the *tu quoque* that his criticism is evasive in so far as it forestalls the objection that the printed evidence goes against his allegations that just these ideas really are operative in Linguistic Philosophy.

Indeed, in so far as Mr. Gellner claims that Linguistic Philosophers disguise or disavow ideas which silently shape their activities, he puts himself in the position of a complacent psycho-analyst who regards his patient's protestations against his interpretations as further confirmation of them. This difficulty, inherent in the enterprise Mr. Gellner has undertaken, inclines me to the view that the best course for the philosophical opponent of Linguistic Philosophy is not to embrace it in order to strangle it, but to get on with interesting work of a non-linguistic character, leaving Linguistic Philosophy to die of inanition. But I dare say that Mr. Gellner would reply that sociological and institutional factors ensure that the movement will not die of its own accord; and that assassination has become a duty.

Mr. Gellner's second charge is that the mixture of tacit and partially avowed ideas behind linguistic practice constitutes a system, elastic, and not altogether coherent, which can and does survive the surrender of any particular component. Whatever amputations it suffers, it adapts itself and continues to cling tenaciously to life. Indeed, the existence of tensions between some components allows defenders of the system to surrender a position *gladly*: 'As the attackers arrive at what they suppose to be a crucial position, they are waved in by the retreating linguistic philosophers with friendly assurances that they never really wished to defend the position, and with offers of help in its demolition' (p. 165).

His third charge is that Linguistic Philosophy involves a number of characteristic ways of talking and arguing which have a thoroughly defensive function (I use 'function' in the anthropologist's sense whereby a ritual or procedure may have a social role or function of which its practitioners are unaware). The only thing which makes this part of the book controversial is the claim that these practices are indigenous to Linguistic Philosophy. Yet Mr. Gellner explicitly commends the forthrightness in debate of some Linguistic Philosophers and there are surely some philosophers outside this school who have resorted to similar defensive practices. That the practices Mr. Gellner depicts are aids to irrationalism, whoever may employ them, I doubt if anyone would deny, and I think it is entirely beneficial that Mr. Gellner should have marked them out with distinctive titles — 'Philosophy by Filibuster', 'Philosophy by Frisson', 'Keep them Guessing', etc. To his list, I should like to add one of my own, which might be called 'Criticizing your own criticisms of yourself'. The method here is to repeatedly interrupt yourself with criticisms which hardly anyone but you would have thought up and then judiciously scrutinize these criticisms, and so on. At the end of a performance of this type, your audience, being quite unclear about what views you *do* hold, will be unable to criticize you but should be suitably impressed by your detachment and ingenuity in seeing all sides of an issue.

Mr. Gellner claims that to expose Linguistic Philosophy it is enough to articulate the underlying doctrines, to describe how each reinforces, without being indispensable to, the rest, and to describe the defensive strategies and manœuvres which are available when the system is under

attack. 'Exposition and refutation are one' (p. 30); again: 'There is a sense in which, once Linguistic Philosophy is properly understood, further criticism is redundant' (p. 193). Not that Mr. Gellner confines himself to exposure by exposition; he throws in satire, raillery, acid asides, and some blunt condemnation for good measure. His book, which is often very funny, could be regarded as a sustained joke with a deadly purpose. The joke, which his victims will find unfunny, is consummated in a diagram which displays a self-contained network of mutually reinforcing linguistic doctrines. This diagram is accompanied by instructions for expounding Linguistic Philosophy (proceed from some main doctrine along straight lines – representing mutual support – *via* various doctrines until you eventually arrive back at your starting-point), and also for defending it (by proceeding along jagged lines – representing mutual strain or inconsistency – from a doctrine assumed to be refuted to as many main doctrines as possible). The joke also comes to a head in a scathing passage where Mr. Gellner shows that the main theses behind Linguistic Philosophy are such that their refutation has the happy result that the doctrine refuted is thereby confirmed once more! For example, if the idea that general formulas are mistaken in philosophy turns out to be mistaken, that is because this idea is itself a general formula. Again, if the Contrast Theory of meaning, which says that the antithesis of an expression in use must also have a use, turns out to be wrong, that is because it too must, according to itself, have a contrast (see pp. 149-50).

Mr. Gellner's last chapter discusses the sociology of the movement. His justification for this approach, which has aroused considerable protest, is stated as follows: 'Any individual holding some of these [Linguistic] ideas finds himself in a situation where a large part of his intellectual environment (or rather the *whole* of the intellectual environment that he takes seriously) consists of people who, collectively, add up to something like the interlocking scheme depicted [in *Words and Things*]. So, the logic of the ideas is in a sense also the sociology of the movement' (p. 162). That there is nothing inherently disreputable about a sociological investigation of Oxford philosophy is shown by the fact that one Oxford philosopher, Mr. R. M. Hare, has in *Ratio* (vol. II, No. 2) depicted the beneficial influences which, he believes, the social situation of Oxford philosophers exerts on their philosophizing. Briefly, Mr. Gellner's view is that Linguistic Philosophy is a vehicle for the complacent values and assumptions of English gentlemen at Oxford who have no specialized knowledge or disquieting problems but a lot of students and time on their hands. It is the esoteric ideology of anti-esotericism. One might say that modern Oxford philosophers have *anglicized* Wittgenstein as their predecessors anglicized Hegel, watering down their over-spiced continental ideas to suit English tastes.

Yet this watering-down process needs no sociological explanation. Mr. Gellner gives the proper explanation when he accounts for the latest view according to which Linguistic Philosophy is *not* a philosophical revolution after all, but is actually in the good old Anglo-Saxon tradition:

no part of the original revolutionary promise to cure all philosophical perplexity by linguistic analysis has been fulfilled. The body-mind problem, for instance, is as perplexing as ever it was. Professor Ryle, who saw it as a genuinely perplexing problem, made a heroic attempt to dissolve it by a purposeful re-examination of the concepts involved. This one notable attempt to show that a classical philosophical problem is really only a puzzle generated by linguistic confusion failed. Given the persistent failure of Linguistic Philosophy to cure philosophical perplexity two courses were open to Linguistic Philosophers: either retain an interest in philosophical problems and attack them with other, less unpromising methods, or go on applying linguistic methods and refuse to be perplexed by the mind-body, or any other, problem. *This*, rather than English complacency, is the explanation of the fact that a good many Linguistic Philosophers appear to be entirely unperplexed by the world, as if it presented no philosophical problems. Their reasoning might run as follows: our methods are the only possible ones; if there were any problems they would have yielded to our methods by now; actually, our methods have not dissolved any problems; therefore there are no problems.

Mr. Gellner does not say much about his positive conception of philosophy, and I do not like the little he does say. Philosophy, he says, springs 'from the need to re-order our concepts' (p. 55). His view appears to be that Linguistic Philosophy results in conceptual conservatism whereas good philosophy would consist in continual conceptual revision. This would still be a sort of linguistic philosophy, though of a more adventurous kind. Tired old concepts would be abolished and bright new ones invented to replace them.

It seems to me that, here, Mr. Gellner has overlooked a very simple point: the person who wishes to deny the existence of something needs a concept of it just as much as the person who wishes to assert its existence. Mr. Gellner says of somebody who denies the existence of witches that 'he is recommending the abolition of a whole genre of speech, witch-language' (p. 35). Yet if witch-language *were* abolished, it would become impossible to deny the existence of witches. (It is worth recalling how disconcerted certain atheistical Logical Positivists felt when they realized that they had made atheism, as well as theism, 'meaningless'.)

My own view is that, while we certainly want challenging new *ideas*, we also want as much conceptual conservatism as is compatible with speculative innovation. We want to put across new ideas, so far as possible, in old language. Too much conceptual instability would lead to a breakdown of communication which would be as harmful to new ideas as to old ones. Of course, all theoretical innovation which goes beyond rearrangement of, or denial of the existence of, accepted categories, is likely to involve *some* conceptual revision. But the point is that the old concept is usually *enriched* rather than abolished. Four centuries after Copernicus, the Astronomer Royal still writes of 'sunrise' and 'sunset', though these concepts have a richer meaning for him than they had for Ptolemy. Or consider the concept of redness. For a modern physicist, to say that an

object is red is to make a highly theoretical assertion which tacitly refers not only to the object itself but to some potential source of light-waves of a certain wave-length and to a potential observer, the members of this triadic relationship being supposed to move relative to each other at speeds sufficiently moderate for no Doppler-effect to become noticeable. But this complex concept does not *exclude* the commonsense concept of 'red'; it *incorporates* it. When a modern physicist calls to his unscientific wife to come and watch the red sunset, she understands a *part* of what he means.

A polemical book like *Words and Things* sets a peculiar standard of success for itself. The author is in the position of a boxer who cannot win on points but has to deliver a knock-out blow. An all-out attack which merely made some good points would be a flop. This book is not a flop.

J. W. N. WATKINS

ABRAHAM A. FRAENKEL: *Die Philosophie der Mathematik*. In: *Die Philosophie im 20. Jahrhundert*. Eine enzyklopädische Darstellung ihrer Geschichte, Disziplinen und Aufgaben. Herausgegeben von Fritz Heinemann. Verlag Ernst Klett, Stuttgart, 1959.

This article does not deal with a general philosophy of mathematics, as might be assumed from the title, but is an account of certain problems which occur more particularly in the theory of sets. To these belong not only the well-known set-theoretical (respectively logical) antinomies, but also the situation in which the axiom of choice in the theory of sets is affirmed by some mathematicians and rejected by others — although it is indispensable even for certain parts of the analysis. Another problem lies in the fact that the Cantor continuum problem has to date found no solution, and that the view is becoming ever more prevalent that the said hypothesis is independent of the usual set-theoretical axioms. Finally we have the Löwenheim-Skolem paradox and Skolem's recent more pointed formulation of it.

Various attempts at solving these problems and their difficulties are discussed: the radical intuitionist solution with its repudiation of large parts of classical mathematics, solutions which make use of Russell's theory of types or are variations of it, and further the proof theory of Hilbert and the realization of its limitation. The occasionally hinted assertion that mathematics would in the future split up into several mathematics after the manner of geometry is not consistently upheld by the author; on the whole he tends more towards the opinion, which the reviewer considers reasonable, that there exist in mathematics several stages of a constructive edifice and that pure existence axioms, too, have a place in mathematics.

With regard to the Skolem paradox, a further remark seems called for. This paradox is evidently connected with the fact that no logico-mathematical system of axioms is able to reproduce the entire wealth of our

thoughts in this field; perhaps the deepest root of the difficulties concerning the continuum problem also lies here. At all events, the difficulties listed by the author are present and in a certain sense disturbing; every philosophy of mathematics must face them.

WILHELM ACKERMANN

(Translated from the German)

A Précis of Mathematical Logic by I. M. BOCHENSKI. D. Reidel Publishing Company, Dordrecht, Holland, 1959.

This sketch of mathematical logic is a translation of earlier editions. The original appeared in French under the title *Précis de logique mathématique* (Bussum, 1949), and a revised and somewhat enlarged German edition was published by A. Menne (*Grundriss der Logistik*, Paderborn, 1954). The translator (O. Bird) has in the main followed the French text, adding from the German edition, however, the more comprehensive bibliography and the articles on modal logic and syntactic categories.

The book presents, in very concise formulations the fundamentals of propositional calculus (truth functions, valuation, axiomatic system, transition from logical propositions to corresponding rules of derivation, conjunctive normal form), the logic of predicates and classes (syllogisms, monadic and many-place predicates, descriptions, class calculus, antinomies, and the theory of types), the logic of relations following more or less the Russellian presentation, and it gives some account of further subjects such as modal logic and syntactic categories. Large numbers of correct formulae from the respective fields are appended to each section; yet one could have wished for more examples of the transcription of propositions of ordinary language into the language of mathematical logic as this is of particular importance in an introduction. A derivation of the given formulae is dispensed with, axioms being provided only for the propositional calculus and the restricted predicate calculus. A discussion of more difficult problems requiring mathematical treatment is omitted, the author evidently having in mind readers more interested in philosophy. For these the book is a useful account of the fundamental concepts and facts. Bibliographical data and historical notes are attached to the individual sections. The symbolism employed is partly the bracketless kind of Lukasiewicz and partly the Russellian.

The account is on the whole reliable; two assertions in the book, however, need correction. The first is that no formal system as yet exists for the one-place predicate calculus, which is incorrect. The other is that only true propositions of the one-place predicate calculus are obtained if ' $(x)\gamma x$ ' is interpreted as ' $\gamma a \ \& \ \gamma b$ ', and ' $(Ex)\gamma x$ ' as ' $\gamma a \vee \gamma b$ ', and the formula of the predicate calculus is thus transformed into an identity of the propositional calculus. An example to the contrary is the formula ' $(Ex)(Ey)(\gamma x \ \& \ \gamma y \ \& \ \psi x \ \& \ \overline{\psi y}) \rightarrow (x)\gamma x$ ', which does not represent an

identity of the predicate calculus but which is transformed by the interpretation into a correct formula of the propositional calculus. Actually the reverse is correct: all correct formulae of the predicate calculus are also correct according to the interpretation – but the opposite does not hold good.

WILHELM ACKERMANN

(Translated from the German)

Geist und Materie by ERWIN SCHROEDINGER. 'Die Wissenschaft', Vol. 113. Fr. Vieweg & Sohn, Brunswick, 1959. Pp. 78.

This is a German edition of the Tarner Lectures on 'Mind and Matter' which Schroedinger delivered in October 1956 at Trinity College in Cambridge, England. They have not been published in English.

The first of the six lectures, entitled 'The Physical Basis of Consciousness', asks what material events are directly linked with consciousness. The author summarizes his answer, having explained the experimental fact that 'every occurrence of appearance in which we are consciously ... participating, gradually drops out of the sphere of consciousness if it repeats itself frequently and uniformly' (p. 3), in the 'conjecture': 'Consciousness is bound up with learning on the part of the organic substance: organic capacity is unconscious.' This is evidently valid, however, only for the organic substance that is already *capable* of consciousness. Schroedinger does not deal with the really preliminary question concerning conditions of capacity for consciousness, the first beginnings and the development of consciousness. Nor does he deal with the problem of the relation of consciousness to the much older onto- and phylogenetic Mneme of Semon, which he cites.

The second lecture, entitled 'The Future of the Understanding of the World', poses the question of the possible advance in the physical and psychical development of man and deplors the 'apparent gloss of Darwinism' (pp. 13ff.) i.e. his 'Fatalism' which discourages man's independent active spontaneity. To this he then opposes Lamarckism, which emphasizes the active co-operation of the living being in its own development (namely, by the constant use of organs for determinate ends) as 'wonderfully uplifting, strengthening courage and confidence' (p. 15). Nevertheless he feels compelled to reject Lamarck because of his erroneous assumption that acquired characteristics can be inherited. The author finds a way out of this dilemma. 'Without altering anything whatsoever in Darwin's basic assumptions, it can be shown that the individual's way of behaving, the manner in which he makes use of his innate capabilities, is an important factor, and indeed the decisive factor, in evolution.' The condition of evolution, he argues, is that the characteristic or organ 'remain actually in use throughout the whole time ...' The author assents to this idea in Lamarckism. (It should be noted here that Darwin does not relegate to the background the evolutionary significance of the use

or non-use of organs either; on the contrary, he emphasizes it repeatedly: cf. *The Descent of Man*, I, Ch. 2 and Ch. 7 — Vol. I, p. 19, pp. 48ff. and p. 295.)

The third lecture, entitled 'Objectification', refers back to the author's earlier works on 'two very general principles, which lie at the basis of our attitude in the natural sciences: the principle of the *intelligibility of nature* and that of "*objectification*"', i.e. the hypothesis of the real external world with the exclusion from it of the subject of knowledge.

The psycho-physical problem is approached from this point of departure, and the author refers to several quotations from Sir Charles Sherrington (*Man on his Nature*, 1940). The psycho-physical problem itself is regarded as insoluble just because of this self-exclusion of the subject from the external world, or (according to more recent views) from his own conceptual construction ('models'). The resolution of the problem is sought in a sort of '*annihilation of the problem*' (E. Mach): 'Subject and object are only one ... there is no such boundary.'

The fourth lecture is called 'The Arithmetical Paradox. The Unity of Consciousness'. By 'the arithmetical paradox' the author means 'the *many* consciousness-egos out of whose sensuous experiences the *one* world is brewed together'. By 'the unity of consciousness' he means the problem of 'mental integration of quasi-independent spheres of perception' (pp. 39ff.), which is again discussed with reference to numerous quotations from Sherrington. Both paradoxes will, perhaps, be solved in the future, 'by integrating into the structure of our western natural science the eastern doctrine of identity' (p. 46). By this the author means the doctrine of the Upanishads, according to which the many are mere appearance and in truth there is only *one* consciousness (p. 40), and other related doctrines of identity. But how can a 'blood-transfusion' of western thought with an eastern metaphysical *doctrine*, no matter how prudent this transfusion may be, resolve a paradox? Surely, this could only be done by a new *method of thinking* compatible with the earlier one.

The fifth lecture, entitled 'Natural Science and Religion', limits itself, so far as religion is concerned, to the *dogma of immortality*. The most important contribution of natural science to this is thought to be 'the gradual idealization of time' (p. 53), which is, expounded historically on the basis of the teachings of thinkers from Plato to Kant, Boltzmann and Einstein. The idealization of time presented by the statistical theory of time signifies 'a liberation from the tyranny of Father Time. What we ourselves construct in our mind can, as I see it, not possibly have dictatorial power over our mind' (p. 65) — to which one can, however, object that the verse of Goethe

'Am Ende haengen wir doch ab
von Kreaturen, die wir machten'

at least shows that the opposite view is possible.

The author's conclusion is guarded: 'the theory of physics ... in its present state, suggests that the spirit cannot be annihilated by time' (p. 65).

The last lecture, called 'The Mystery of Sense Qualities', has to do with the fact that our entire physical and physiological knowledge rests upon sense perception, yet cannot explain the relation of qualitative sense perceptions to the observable quantitatives in the external world (the relation of colour to wave frequency, for example). This lecture is in essence purely physical and quite unspeculative.

This book, in which an outstanding physicist undertakes an excursion into philosophical borderlands, is characterized by a method aimed at enabling the natural scientist to make statements on questions on which natural science proper yields nothing and can yield nothing. As has been shown, this method consists in the author setting out on the one hand from what has been established in the natural sciences, and on the other from a quite special individual thought within the 'borderland' in question, and speculating upon these by extrapolation.

But while hypothetical interpolations are of the greatest heuristic value for the further development of the exact sciences (one calls to mind the splendid example of the prediction of new chemical elements, which were later really discovered, from the empty spots in the periodic system); while extrapolation itself can contribute much to the elucidation of borderlands, there are nevertheless hazards in yielding to the *horror vacui* which is not cognitively, but affectively conditioned, even when one avoids, as a matter of course, filling up the empty places with speculative concoctions conditioned by these same affective considerations (as is generally the manner of undisciplined thinking, and especially of pathologically disturbed thinking).

The author, who is not here speaking as a pure physicist but who undoubtedly knows, as a physicist, *that* he is speculating and *where* he is speculating here, knows the limits within which he must keep and at first emphasizes them, although he then always seeks a version which allows him (and the willing reader) to go beyond these limits, if not logically, then at least as a matter of politeness.

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(Translated from the German)

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We announce with deep regret the sudden death, in New York on 29 December, 1960, of the Editor of 'Ratio', Professor Julius Kraft. A full appreciation of his work will be published in the next issue.

The new Editor of 'Ratio' will be Professor S. Körner, of Bristol University.

Preparations for the present issue of 'Ratio' were sufficiently advanced before Professor Kraft died, for its publication to be possible according to his wishes. Apologies are offered to readers for the delay in the appearance of this issue which was caused by the exceptional circumstances that prevailed.

2

FRAGMENT ON AESTHETICS

BY WALTER A. PETERHANS¹

Both Fries and Nelson endeavoured to found the aesthetic judgment ... on transcendent ideas ... The point of departure for my own investigations was the firm conviction that logical ideas cannot supply the foundation of the aesthetic evaluation. As regards their content, they are able, as transcendent ideas, to yield only religious judgments. As regards their logical form, they are able, as negative concepts, to yield only negative judgments ... But the aesthetic judgment has neither a religious content nor a logically negative form. Its claim to necessity and universality must rest on other grounds than logical ideas.

From: *On the Methodology of Aesthetics*

IN the advance of science the aesthetic appraisal has a difficult time. It is readily brushed aside as mere subjective opinion to which neither necessity nor universal validity can be ascribed. Much is already conceded when conformity with laws of its own is attributed to the beautiful object. But even this admission of 'conformity with its own laws' is at once restricted to mere beautiful appearance: the aesthetic appraisal, it is asserted, is disinterested in the existence of its object, i.e. the latter is merely the object of its contemplation.

The present investigations into the nature of the aesthetic judgment are not based on a careful weighing of historical systems of aesthetics. Nor do they provide dogmatically formulated principles resulting from personal preference or choice according to purpose. Rather, they are founded on the consistent logical analysis of concrete aesthetic judgments themselves, such as are given in the writings of Jacob Burckhardt, Alois Riegl, Friedrich Rintelen, Max Friedländer, Julius Meier-Gräfe, Wilhelm Fränger, Georg Simmel, Kenneth Clark, Roger Fry, Robert Melville, and others, and also in my own work. This analysis leads to principles which form the logical foundation of the concrete judgments and are reflected in them without being definitely stated. The principles thus disclosed sometimes deviate markedly from the aesthetic world-view these same authors believe they hold, this being due to the original obscurity of those principles.

¹ Walter A. Peterhans (1897-1960) possessed a rare combination of philosophical, mathematical and artistic gifts. As co-founder of the Dessau Bauhaus and as academic teacher, he exerted a powerful intellectual influence. His *Fragment on Aesthetics* represents an introduction to the ideas he intended to develop in a book to be entitled 'Theory of Aesthetic Judgment', and which unfortunately remained unwritten.

The method of this investigation, then, is the critical one, or, as it has been called since being successfully applied in mathematical foundational research, the axiomatic one. Underlying the geometric-axiomatic investigations of recent decades is the entire stock of geometry: Euclid's system of postulates and theorems; the conic-section theory of the Alexandrians; the projective geometry of the nineteenth-century French mathematicians; and the non-Euclidian geometry of the last century. The application of the axiomatic method to aesthetics must appreciate and logically evaluate the aesthetic experience of the works of a Kandinsky or a Picasso or a Mondrian, of a Klee and a Cézanne, of a Delacroix and a Holbein, a Grünewald and a Jan van Eyck. It must orientate and justify itself by the analyses provided for architecture. That is the superficial part of the analogy.

The decisive parallel lies, of course, appreciably deeper: the axiomatic method, whether applied to mathematics or to aesthetics, is itself neither mathematics nor aesthetics; it does not itself pronounce mathematical or aesthetic judgments; it does not make these judgments its own content; it does not play off Riemann against Euclid, or the constructivists and purists against the realists and sentimentalists. It is demonstrated in mathematical foundational research, for instance, that the parallel postulate is an axiom independent of the other axioms and entirely consistent with them. These are *in content logical* (not mathematical) assertions which have mathematical assertions as their *subject matter*.

The contents and aim of axiomatic aesthetics are not of aesthetic, but logico-critical nature. Axiomatic aesthetics takes aesthetic judgments, no matter from where, and makes them the subject of investigation. It endeavours, by systematic dissection, to reveal the assumptions on which those judgments are unconsciously based; it attempts to reduce these assumptions to their most general form — that is, to axioms.

It is then able to characterize quite different conceptions of art by their respective axiom systems; it is then able to generate artificially all imaginable conceptions of art by directly modifying these axiom systems themselves without each time having to proceed from new or refurbished aesthetic theories. Just as is done in the so-called non-Euclidian geometries, all of which are obtained by consistently modifying a fixed system of axioms.

Only then can we ask, with some prospect of success, which of the possible axiom groups ('conceptions of art') acquits itself better than the others. We do not pretend that we are able to find a complete solution to the manifold and difficult problems of aesthetics, or even

to enumerate them in full. But in the sciences all serious controversy is first concerned with method; with the method the results stand or fall. We consider as given the proof that the axiomatic method can be applied to aesthetics and we hold the method itself to be remarkably exact and productive.

As for the much sought-after results, they consist, in brief —

negatively: in the repudiation of every form of representation, whether naturalistic, idealistic, or otherwise; in the repudiation of mere contemplation indifferent to existence, which is what the prevailing doctrine still is; in the repudiation of the doctrine that logical ideas are the principles of aesthetic evaluation;

positively: in the foundation not only of the possibility, but also of the inevitability of the direct and free construction of the aesthetic form in perception; a construction based neither on abstraction from the appearance, nor on its transformation; one which, on the contrary, imposes the law on appearance with complete autonomy; something similar to the procedure according to which mathematics constructs its concepts in perception; furthermore, in demonstrating that we attribute aesthetic quality to works of art, old and new things alike, only in so far as they, concealed in realism or idealism, partake of those free constructions; as becomes apparent from the analysis of judgments passed on them, if this analysis is only carried far enough. And finally in the demonstration that the beautiful appearance is not merely something historically established and hence *a posteriori*, but a symbol, distinguished *a priori*, of that which is completely otherwise, of the eternal: unexpected transformation of the finite, threshold of the eternal.

There are objects of the greatest physical diversity which resemble each other, however, in their perceptible appearance. This is shown in grotesque distortion by the painting of Arcimboldo: he creates portraits and landscapes by substituting entirely different objects, plants and fruits, for the parts of the face, yet still renders the face, features and expression with definiteness.

The converse holds good too, and the analyses contain the clear indication that one and the same object becomes pictorially significant in the most diverse qualitatively determined forms. The fruits, for instance, in the still-life studies of van Gogh, Cézanne and Manet are quite different in appearance. Cézanne's apple is heavy, condensed substance moulding its own surface, thrusting forcefully into it; precisely formed mass — as in a molecule model — combining with others to make space. Manet's fruits are cellulous, squashable, they collect the dew, are silver, cool, glistening in the morning

light. Those of van Gogh glow, burst; they breathe, are sometimes of animal heat, rounded off in themselves; sometimes circling like stars.

The analyses rely largely, and inevitably so, upon such resemblances with objects that are 'alien to the picture' in order to determine the form of the perceptible qualities. Kenneth Clark compares Rubens's 'Woman's Hands' with a landscape of undulating hills and waterfalls; the 'Rape of the Sabines' with fish caught in a net. This characteristic of the analysis can be observed generally and is, in fact, inevitable. Perceptible qualities do not unambiguously determine a definite object; they refer to other objects. This reference is of visual nature, not conceptual. In conceptual terms the comparison with foxes caught in a trap is as accurate or as inaccurate as is the comparison with fish caught in a net. It is the visual experience of the arc of the bodies, the trammelled movement, the skin's mother-of-pearl tinge which rejects the first comparison and decides on the second in which these qualities come together.

In the works of the masters, the master's personal style is maintained, unimpaired and unmistakable, throughout the succession of depicted subjects. It is the same in Rembrandt's 'Slaughtered Ox' as in his 'Jewish Bride'; the same in Cézanne's 'Boy in a Red Vest' as in his 'Card Players'. This unity of style is a necessary, though inadequate criterion for judging a painting's quality.

It is implied in these preliminary remarks that artistic beauty is not a representation of conceptually determined reality: this repudiation also holds good for 'realistic' works. Delacroix has painted a series of lion hunts which have all the force of a thunder storm, of a wild, destructive, macabre dance of death. All action is swept into this one moment; what went before, what will later be — we do not know. We know only the Now, the Here in this elemental swirl of dust, in the dimmed light of limbs, bodies, weapons, and we know the extraordinary dimensions and distances of these fragments by the pace and violence of the event.

They are, in this sense, realistic. Yet this realism defies every attempt to reduce it to physical or biological concepts; indeed, every endeavour merely to define the participants — their number, kind, tactics, fate — seems foredoomed as an absurdity. Is this just a hunt? Does a triad consisting of rider, horse and lion participate in this event? We are not interested in the physics of the happening. What captivates us is the visible quality of the whirl of light, colours, textures, the interweaving of forms in this devouring space. Finally, from out of this multiplicity of individuals there emerges a single being, a monster, some primeval creature, at frenzied play or

dancing a self-destructive dance of death — a 'creature proposed to nature'.

Here the representation of nature is quite clearly excluded in a painting that at first sight could pass as highly realistic; excluded by the device of a being which, though not real, seems to approach closer to the picture's significance than a realistic interpretation could.

The facts presented here are well known. Zola's dictum: 'L'Art est un coin de la nature, vue par un tempérament' tries to sum them up. Yet it hardly touches on the question of the *origin* of the composition, nor on that of the *significance* of this transformation through a temperament. But these facts are incompatible with the assumption that the visual arts represent nature. There is no definite concept of a representation of nature by the visual arts which would accord with these facts.

We may summarize the initial results of dissecting the analyses by stating that the form presented by the qualities in the picture is by no means plainly given to the senses in the natural object itself. In other words: there is no representation of a natural object by virtue of qualities which clearly belong to it, are 'held' by it. What has been called representation is at best the result of being stimulated, of being stimulated to artistic creation by the object. In a similar manner, we are stimulated by experience to make the *discovery* of geometry, for instance, although we do not derive the *foundation* of geometry from experience. The true nature of geometrical axioms does not consist of the 'idealization' of empirical data. All idealization presupposes an ideal, and since this ideal is to be the norm for correcting observation, it cannot itself spring from observation. Kant called this ideal pure intuition, and what has been termed idealization is the transition from the empirical to pure intuition. Similarly in the sphere of aesthetic creation. We must presuppose aesthetic intuition, free creation by the constructive imagination, in order to pass from nature to the picture. Without this intuition, this passage, which is a deviation from nature, would be quite impossible. There would be no kind of criterion to regulate it.

It may well happen, and is even to be expected, that we shall find in nature phenomena whose perceptible qualities *coincide*, or almost coincide, with the artistic creation — phenomena in which creation and reality meet. One may call this 'representation' — yet it is obvious that the expression is being used here in a sense totally different from the one originally intended; namely, in the previously mentioned sense of stimulating creation; not in the original sense in

which sensible aesthetic being is given from without with the object. Originally the beautiful picture is not a rendering, or representation, or symbol of beautiful nature. Rather, it contains the law of the beautiful for nature, more or less in the sense of the title to Morgenstern's poem: 'New Formations, Proposed to Nature.'² That is also the true meaning of Schiller's remark: 'Poetic truth, however, consists not in something having actually happened, but in the possibility of it having happened. Hence in the inner possibility of the thing.'³ That is also the testimony of Klee, who admitted 'in an allegory about a tree that it was not overhead at the visible trunk or the beautiful treetop where he worked, but below, out of sight, at the roots'.⁴ Listen to Meier-Gräfe, too: '... the celebrated dictum of Zola's is true only if one gives as little meaning as possible to coin de la nature and as much meaning as possible to tempérament'.⁵ The law for the beauty of nature itself, however, is property of the spirit, a free product of the constructive imagination which expresses itself in the picture.

Thus it is not the fact that natural forms stimulate aesthetic creation nor the fact that there exists a particular model in nature corresponding to the aesthetic form, upon which we can base the demand that a work of art should represent beautiful reality — whether or not we accept a sensation of aesthetic pleasure in the *reality* of the beautiful. We could more easily assert the contrary, namely, that in these cases the beautiful nature exemplifies the law of beauty which is prescribed to it *a priori*.

The finger of John the Baptist (in Grünewald's 'Isenheim Altar') pointing to the Crucified One — a *tu quoque* for each of us, an arrow aimed in our direction, one which seeks us out in the depth and night of a boundless space — and yet a gesture of triumph, of fulfilled prophecy, of truly attained salvation, of triumph over death.

Here it has become necessary to speak of spiritual qualities which find shape in the gesture of the Baptist. The force of this gesture surpasses what can be achieved by a mere comparison of form in making palpable the gesture's structure and significance: its spiritual saturation. We no longer refer to other objects in order to determine the particularity of the qualities that sustain the picture: we determine this quality by its indwelling, formative spirit.

We infer this spiritual saturation. This presupposes a minimum of two things. We must know from personal experience about gestures, about the specific forms human limbs and features assume when

² *Alle Galgenlieder*, 1951, p. 35.

³ *Über das Pathetische*, 1838, vol. XI, p. 424.

⁴ The author in 'Schweizerische Monatsschrift', October 1948, p. 50.

⁵ *Entwicklungsgeschichte* ... vol. I, p. 154.

communicating anything about the spirit or about a particular subjective experience. First, then, we must know this spiritual life, and, secondly, we must know the means by which it expresses and communicates itself, the signs through which it becomes legible. Only then will the re-employment of purely formal comparisons bear fruit and do justice to the picture's importance. Only then can we speak of an 'arrow aimed in our direction, which seeks us out in the depth and night of a boundless space'. For only by naming the formative spirit that shapes specific forms and gestures as it does can we apprehend their visual peculiarity and singleness and enrich and complete this apprehension by again comparing them with external objects. Then of Mary standing beneath the cross we can say not only:

What capacity to accept suffering, to let it enter the self, to see it not as a misfortune, but as a mission, as a pervasive burning force, to which one must expose oneself totally in order to survive as this human being, to be the vessel of the soul — but also:

What remains of the body is an extreme force that stiffens the garment into a grey-white, yellow-white, green-white tegument, transforms it into this mother-of-pearl shell, which would not exist without the hurt body within. Thus the body, though it does not manifest itself as trunk and limbs, is nevertheless present. And it appears once again, with extreme accuracy, in John's embracing arm, in the supporting hands and fingers. This arm is saturated with tenderness, which seems to flow out from John's entire being, so that face and body are consumed by the overwhelming will to suffer with the other one and to succour him. Again, in the thin transparent shell of his face the spirit's capacity of tenderness and of aiding are as much present as its capacity to suffer. The hands of both Mary and John are deformed, sapped by grief and suffering, and yet they are roots, drawing sustenance and help from the acceptance of suffering, gaining humility from it which is not weakness but dignity, transforming and forming, perpetual life. These are not expiring flames that flicker towards their end, but pure, fire-cleansed ore, bells in the making, shedding their last dross.

It seems to us that the return of the analysis from the spiritual to the visual is here completed — it being at the same time shown that the spiritual first sufficiently determines the peculiarity and singleness of the visual-qualitative. That, however, is only part of what has to be said on this second, 'spiritual' kind of aesthetic analysis. Here too we must bear in mind, as we did earlier on in our sensible-qualitative analyses, that visual art does not represent, but, in creating, lays down the law for nature. Can this notion be maintained here?

By all means. Just as earlier on the unexpectedly changed was important to us, the picture's pointing beyond itself, the breaking-in from another order into the still quite finite — so it is now. The 'inferred' spiritual, too, is something unexpected, completely otherwise, something agleam with its very own splendour, a reminiscence of other spiritualities; by no means necessarily identical with the object, with say the person portrayed, as he appeared and was known to us hitherto; and yet still the finite, the finite spirit. As earlier on the visual qualities which enter the picture were not at all new, but known from experience, only their new arrangement belonging to artistic creation — so now too with reference to the spiritual qualities. To take another example: the 'tranquillity' in the facial features of Jan van Eyck's figures (Giovanni Arnolfini) is well known to us and nothing new. But the use van Eyck makes of it by cleansing, purifying, intensifying, and by spreading it like a vibrating concert pitch over his space — a dark, fruitful, sublime tranquillity — that, in fact, is as unexpectedly novel as the use which Cézanne makes of the form of the mussel by elevating it to the original being, the original visage.

In all this, it is true, in the sensibly and spiritually qualitative, there is finiteness, but it is finiteness which proclaims the eternal. That we can speak of the *harmony of spiritual* qualities, e.g. of their being a lasting state of serenity and suspension in much of van Eyck, and of their importance for the picture, is because these qualities are *within one another*, at every moment, no matter what the span of their duration might be. The multiplicity of qualities lying within one another is known to us from inner intuition. For the spiritual to proclaim the eternal, an inner-intuitive free harmonization of its qualities into a uniform spiritual picture is necessary and sufficient. Such kinds of harmony give us a concept of 'spiritual beauty' different from that of 'virtue', one, however, which is still fully governed by the condition of the harmonizing of sensible qualities, inwardly-perceptible spiritual qualities. We must concede to painting spiritual beauty, 'living spirit'. The analyses show that without this concept our aesthetic experience of some of our best pictures remains incomplete, is distorted. But this spiritual beauty is not the *representation* of already existing spiritual beauty; it is superimposed, newly created. It is in particular not the representation of virtue. Virtue, to the extent that it is a conceptually determined form of the unity of spiritual life, can for this very reason not become the object of painting; it cannot set the latter any tasks. A virtuous person may become the subject of a portrait — he does so, however, *not as a virtuous person*, but — in so far as his spirituality is at all subject of

the painting — by virtue of the harmonization of spiritual qualities within one another, these being ascribed to him in the picture and thus becoming visible in the appearance, whether or not they are derived from his virtuous qualities, and whether they harmonize or diverge according to concepts of virtue.

The sensible and the spiritual elements which partake in the picture can be separated in thought. The visually perceptible, because given immediately, will always be the starting point from which all further analysis must proceed, since inwardly-perceptible spiritual qualities are in themselves not better — nor worse — than external sensible qualities. What makes both 'worthy' subjects of a picture is the free harmonization of the qualitative into the form of their composition, and the pointer contained therein to eternal spirit. This pointer is direct; it does not require the mediation of spiritual ideals.

The magnitude of the aesthetic experience does not after all consist in the knowledge that there is spirit; we know this from within ourselves (and thus also concede it to others); or that the human spirit and the animal spirit find themselves bound to the body; or that virtue is superior spirit — but in the knowledge that infinite, eternal spirit can be present in any and the smallest perceptible phenomena, so that this, in the beautiful, unexpectedly becomes its symbol.

Just how the union of the sensible and the spiritual in the picture takes place, is a matter of the artistic genius: they fall into each other in the picture, cover each other, go asunder, fructify and enrich each other, point to each other, grow inexplicably into a powerful, dark, gladdening charm, which the concrete aesthetic judgment neither generates nor interprets, which it at best releases, as striking does the tone of the tuning fork.

The fact is that we proceed from the spiritual in interpreting the 'signs' — not in order to read the artist's thoughts or to read thoughts into the picture, but in order to apprehend the form and make it clear to ourselves in just the same way as we resort to other objects for the same purpose.

We cannot dispense with this 'spiritual' apprehension of form: the forms 'actuated by the spirit' are the only ones that come to our help. Thus we light upon 'similarities' with other objects (Cézanne's mussel) on the one hand; and upon incomparable independence, solitariness of the object, on the other. Try, for instance, to analyse Grünewald's 'Mary beneath the Cross' as a mere play of figures, as structural form, as an abstract pattern, in a discussion confined solely to visual qualities. One cannot even appeal to abstract painting

here: take any page of Kandinsky's 'Point and Line to Surface', say 'The Lyrical and the Dramatical'.

It is important that we do not artificially create a self-sufficient complex of causes when attempting to apprehend form spiritually; instead, we must try to determine the form itself, the visual effect, by the introduction of spiritual causes. The spirituality that we have to introduce for this purpose can be a highly uncommon one which we must first construct with much caution, circumspection and delicacy of feeling from the most intensive contemplation of the picture — and with much daring and resignation: as when we speak of the purified tranquillity which hovers in space as the tone of a tuning fork. In such analyses we at the same time demonstrate the creative vision of the painter: he creates new beings, in substance and in visual quality, and also in the spirit; he lays down for these beings the law of their existence.

The repudiation of the trivial method of 'reading thoughts into the picture' is more than justified; and in fact this repudiation affects that literary interpretation founded on the idea of a *representation* of reality, the idea of visual and conceptual representation. It does not, however, affect the theory argued here — and not simply because the latter seems to us to be developed here for the first time with precision, but also because it by nature eludes such attacks: it is anti-representational. *To just what extent* the specifically characteristic element of visual form can be apprehended by referring to it in terms of its spiritual cause — speaking more exactly, in terms of the construction, the fresh creation of a spiritual being that on its own accord shapes it *thus* — is a question answered implicitly, though to be sure only partially, by several of our analyses.

The indispensability of the concept of 'spiritually actuated form' still does not necessarily imply that the concept 'spiritual beauty' is indispensable, either in Fries's sense of equating spiritual beauty with virtue, or in our sense of spiritual beauty. The form actuated by the *spirit* is not yet the form actuated by spiritual *beauty*; it is not yet the *seat* of spiritual beauty.

If we recognize the dependence of the spirit on the body and admit the fact of spiritual beauty, then there are two possibilities for the relationship of the spiritual to the corporeal in portrait painting: Firstly, creation of the visual-qualitative form alone, as in the still-life, so in the portrait. Spiritual qualities are then only the explanatory basis of certain plays of form. As a mere means of explanation *they do not themselves require to harmonize* into a spiritual *beauty*, but can remain entirely disconnected; just as in analysing still-lives recourse

is had to the most diverse kind of object outside the picture, qualities which cohere and harmonize into *one* beautiful whole only within the picture. According to this view, however, these spiritual qualities need to harmonize into a beautiful whole neither in the individual as such, nor in the individual of the picture.

Secondly, creation of the spiritual together with the visual-qualitative form. The spiritual 'imposes itself'; the visible phenomenon is of such a form that the imposed spirituality is itself *beautiful* spiritual life, not merely a random spirituality in general. This beauty can again only mean free harmonization of spiritual qualities into the form of a whole, without a concept of this harmonization. The person is *appearance* in two ways, in corporeal as well as spiritual life, and thus the body as well as the spirit can become in finite appearance, in beautiful appearance, symbol of the eternal. That the body is at all able to become symbol of the spirit is known outside of aesthetic experience, is indeed the foundation of our social existence. That the body, therefore, in aesthetic experience becomes symbol of the *beautiful* spirit is not more enigmatical than that it is itself able to become the *beautiful* body. Both together, therefore, become symbol of the eternal.

Even before we dissect the concrete aesthetic judgment, these purely theoretical considerations lead up to the idea that the beautiful spirit *in* the beautiful body belongs to artistic creation, complements it, and completes its symbolical value for the eternal. Without this recognition, all that remains is either to deny the body-spirit parallel any aesthetic significance whatsoever, or to admit the possibility of the symbolical value of the one component being affected or destroyed by the other, as when, for instance, bodily beauty and spiritual ugliness meet.

But the analyses show that we *demand* spiritual beauty as the agent pervading and shaping the visual form, as a creative force. We do not refer to a disjointed medley of spiritual impulses and activities, but to a purified, significant, coherent harmony of spiritual qualities. The spiritual form in painting springs from an act of creation, it is established just as in the visual form. Where the spirit actuates the body we expect spiritual beauty.

On the other hand this coming together of the spiritually and corporeally beautiful is only possible when both are taken to be established, free of representation, to be creation to which our existential interest belongs. In this, however, we are in agreement with our earlier remarks on superposition versus representation, finding their range of application extended here.

In particular, what we have called 'spiritual beauty' is not

identical with 'virtue'. For virtue is conceptually determined behaviour; as such it does not yet imply aesthetic harmony and could be, therefore, at best the prerequisite of spiritual beauty, in a certain sense its core. Virtue, it is true, is spiritual beauty because of the clarity and strength of the good will within it — the formal condition of its possibility; hence spiritual beauty is a necessary condition of virtue; but the contrary is not true: virtue is not a necessary condition of beauty. It would suffice here to quote a single instance. From the acuteness and depth of the spirit to the receptive serenity of the being, there is everywhere spiritual beauty, without these qualities necessarily being bound to virtue. Leibniz' spirit, in creating, ordering, expounding the monadology, is beautiful, despite the devastating criticism Kant directed towards it in the amphibology of reflexional concepts.

Incidentally, Fries himself occasionally speaks of the strength of the spirit as spiritual beauty.

Generally, however, Fries turned directly from the expectation of spiritual beauty to virtue, just as he turned immediately from the recognition of freely harmonizing sensible qualities to logical ideas as the purported grounds of their possibility. That is, he mistook, very probably owing to insufficient aesthetic experience, the analogy of the beautiful with the eternal for the logical dependence of the aesthetic appraisal on ideas. Fries teaches further that beauty is 'originally spiritual beauty', that is, on his definition, virtue, finite human virtue, and that it extends from here to the 'lower beings'. It may well be that in time we know first of all about our own spirit: I think, I feel, I conceive another spirit — but the temporal order of subjectively established things has nothing to do with the objective validity of what is thus subjectively established, e.g. the conviction of the objective reality of the eternal. The spiritual beauty which approaches us in the sensible qualitative before there is mention of human depiction is not beauty in analogy to human spiritual beauty, not a symbol of wordly virtue, but a symbol of the eternal and *to that extent* 'spiritual beauty'. All virtue may be a sign of the eternal, but the signs of the eternal are not confined to virtue.

Thus the doctrine of Fries is also not confirmed by the analysis based on the picture (or on the intuition). This is most clearly shown in the judgment of human beauty itself. The late self-portraits of Rembrandt are beautiful not because they radiate virtue — even if this were the case: they simply *are* beautiful, and to the extent that they are beautiful, they are direct signs of the eternal because it is not indirectly, by means of virtue that they become such signs.

If the logical ideas were indeed the basis of all aesthetic appraisal,

it would be quite consistent to regard the depiction of virtue as the highest ideal of painting. For virtue presupposes freedom; the paragon of virtue, therefore, is the free one; in him the idea of a realm of aims, of freedom, becomes *real*, they take shape and become manifest, they do not remain abstract and only in the background. The aesthetic appraisal would belong to him immediately, unimpaired, and quite directly: the 'foundation' of this aesthetic appraisal appears itself, as it were, in the paragon of virtue, it is not simply suggested in analogy to virtue.

Here virtue is either identified with the beautiful; or it is declared to be its criterion. Fries actually adopts both positions. The first in the doctrine that ideas contain the foundation of aesthetic evaluation; this leads in particular to the thesis: 'True beauty is moral freedom'. The second in the doctrine: 'The sign of true beauty is virtue'. Aesthetics thus becomes ethics; or a part of ethics.

Against this we say:

1. To the extent that ethics is the *doctrine of duties*, it judges negatively with respect to the qualitative form of the judgment; the aesthetical appraisal, however, is positive.
2. To the extent that ethics is the *doctrine of ideals*, the positive evaluation is in certain concepts; however, there is no conceptual criterion of beauty.

This part of Fries's doctrine is, therefore, untenable; it is only a special instance of the general doctrine that the logical ideas are a foundation of the aesthetic appraisal.

If we are at all to assume a 'source' from which the beautiful spreads out through various grades — why then seek this source in the idea of the freedom of man? That would be understandable on the assumption that art is representational and that there are various grades of representational *merit*. This assumption is in fact one of the main pillars of Fries's aesthetics. We can now complete and vary this argument as follows. The beautiful is a symbol of the eternal. The moral is in fact also a symbol of the eternal. But this does not in itself make the moral beautiful. However, it can come about that in a special case the moral is at the same time the beautiful so that one and the same object is in several ways a symbol of the eternal; namely, spiritually as well as bodily, and according to concepts of freedom as well as the aesthetic conviction. But even if one and the same object can become a symbol of the eternal in a twofold manner, by rational as well as by visual definition, it is still only the sensible qualitative that is given to us *definitely* and directly. We *infer* the spiritual only indefinitely, by analogies with ourselves, in the corporeal.

We are back here at the representational doctrine and its, from the standpoint of Fries, consistent supplementation and extension:

To make this 'inferring' of the spirit in the corporeal *more definite* — and thus to obtain a usable multiple symbol — we must concentrate on the depiction of the human being; for we anticipate the spirit similar to ours most definitely in forms similar to our own body, and in the human visage.

However, we do not arrive at the *highest spiritual* strength in this manner; *for this* we had only a necessary, but not a sufficient condition in that bodily similarity. We find this highest spiritual strength only in *history*, or in *revelation*. Hence Fries's demand that painting should be *historical* and *religious painting*.

This is all quite logical if one accepts Fries's basic contention that the aesthetic appraisal rests on ideas; if one identifies the freedom concept of the aesthetic conviction with the idea of freedom (of the will); if one admits a conceptual, only thinkable harmonization (of the nature of morality) as an object of painting having an equal status to perceptually determined objects.

However, what is so deeply moving in the depiction of man is most certainly not the moral, virtuous beautiful; this belongs entirely to the finite strength of the spirit, it is its perfection, which remains, however, solely within the finite. What is so deeply moving is the experience of 'perceiving without knowing', which corresponds to 'believing without seeing'. It is the experience of the deeply enigmatical in the real, invocation and breakthrough, feeling of the eternal in the real; more enigmatic than the spirit's capacity for virtue. Virtue may be rare; but it is not enigmatic; we 'read' it as our task; it is not, as is the beautiful, a hieroglyphic.

It is, to be sure, the spirit, as Fries so strongly emphasized, which emerges in the beautiful, which gives it expression, and to that extent he is right to speak of the analogy with the spirit-body relation in man. But Fries used the eternal from the very beginning for the foundation of aesthetics. For this, however, there is, strictly speaking, no more or less, but only a sufficient or insufficient; and the acceptance of this foundation implies that all is uniformly beautiful, and there are left only objects more worthy or less worthy of being beautiful. What can still appear in gradations is not the greater or lesser firmness with which the idea superposes itself, not the depth of the enigmatical, of the transformation; not the strength of its isolation or extraction from the serialization in which it is generally given to us. Rather, Fries seeks this gradation in the *objects themselves under definite concepts*; in the objects worthy or unworthy of beauty; in the greater or lesser virtue of men.

There is indeed a core of truth in this, as we have several times acknowledged. We know, namely, of transcending of natural relations in other than aesthetic appraisals; e.g. in moral and legal judgment we presuppose the idea of freedom. And in marking out worthiness we set man above the animal, the plant and the stone. It may happen that the one possessing worthiness has not only 'animal' beauty in appearance, form and culture: he may also radiate this worthiness in a manner that modifies his beauty and makes it something peculiarly spiritual. Here it suffices to recognize this fact for life itself; we do not need to investigate its foundation in life; it is sufficient that it finds visible features, signs, runes. *These signs* become the artist's material, just as otherwise the forms of animal appearance do. And just as the latter undergo 'elevation and transformation' in the picture and thus become symbols of the eternal, so do the former signs too. Therefore, it is by no means sufficient 'to participate in the spirit', to possess reason, or worthiness in order to be a purer symbol in comparison with the rock, the wave, or the animal. Courbet's 'La Vague' lacks, it is true, the spirit of free self-determination, but it is not mere appearance: it is marked-out appearance, symbol of the eternal spirit, for no other reason than that it is beautiful. Only when the finite appearance of the spiritual in the human visage undergoes that unexpected elevation, becomes incomprehensible perfection of the sensible qualitative appearance — only then can we perhaps speak of a more worthy symbol of that which is entirely otherwise. That is the core of truth in Fries's intention, although it is hardly recognizable in him.

Only in so far as painting fulfils itself over and again in the course of its history, do we distinguish in its products higher and lower symbols. They are the work of painting, marked out as such by the latter itself; they are certainly not given to it from the very beginning and from outside as a task. The task of painting is the creation of symbols, the overcoming of the finite, the evoking of the eternal, wherever that is possible, in the lowest object as in the highest. It appears more astonishing, it appears almost the 'truer task' of painting to elevate the low object into the eternal: consider Cézanne's still-life 'La pendule noire' of 1871. True, it is also finally successful in this with the human visage and the spirit radiating within it.

Setting painting the task of depicting virtue probably stems from a religious need, which feels itself close to the eternal only when it is reflecting and among ideas, and which enters only with blind eyes into the charmed circle of aesthetic perception.

(Translated from the German)

THE PRINCIPLE OF INDETERMINACY RE-EXAMINED

BY JAMES K. FEIBLEMAN

I

THE rapid successes of relativity physics and quantum mechanics were bound to be followed by a period of consolidation. Some of the conflicts which had been left behind for later consideration and many of the obscurities which were afterwards uncovered had to be attacked more slowly. The advance of a science is accompanied with novelty and confusion; a novelty marked by departures from older theories by means of unexplained facts, and a confusion as to what the novelties mean. The hard core of experiment is not to be challenged if such data as it produces have been sufficiently established by means of repetition. But the interpretation of the data remains over as a difficult problem. This is especially true of the subatomic phenomena which have given rise to Heisenberg's formulation of the principle of indeterminacy. The reason for choosing this principle for examination is because it illuminates the whole field of quantum mechanics. From this principle certain epistemological conclusions have been drawn which threaten the very continuance of the science of physics and even the method of science if taken seriously. Thus they call for earnest consideration.

Before setting forth the principle we propose to examine, it will be best to refer to some of the crucial experiments which gave rise to it; for the principle undertakes to interpret specific data found by means of experiments. Certain experiments seemed to indicate that the electron or photon is a wave, and certain others that it is a particle.

Wilson's cloud chamber, 1911. Through a chamber in which the air has been saturated with water, α - and β -rays emitted by radioactive elements are passed. The condensation of minute water droplets along the track of the rays (straight in the case of the α -rays, curved in the case of the β -rays) is evidence that the rays are streams of particles moving at high speeds.

Photo-electric effect, 1907. When a piece of metal was exposed to radiation, the ejection of electrons from the surface of the metal occurred in the form of a stream of particles. In other words, light on impact transmitted its energy to matter, but only in finite amounts proportional to the frequency.

Experiment of Davissón and Germer, 1927. By bombarding a crystal of nickel with a stream of electrons of equal velocity, the

electrons were diffracted as a wave of a given length, in exact agreement with the formulas of wave mechanics. Extended and confirmed by G. P. Thomson, and others, notably by Rupp who diffracted electrons by projecting a beam at a tangent to an ordinary grating of metal or glass.

In these and other experiments, such as the diffraction of X-rays, the Compton-Simon experiment, the Franck and Hertz collision experiments, and the Zeeman effect, light (photons) and matter (electrons) respectively have been shown to have both the discontinuous structure of particles and the continuous structure of waves. The more precisely we determine the position of the corpuscle, the less precisely can the motion of the wave be determined; conversely, the more precisely we determine the motion of the wave, the less precisely can the position of the corpuscle be determined. Moreover, there is evidence that the waves are particles and the particles waves. The wave of light has associated photons and the particle of matter (the electron) has associated waves. How can the same phenomenon be both wave and particle; how, in short, can the same radiation produce both the interference patterns characteristic of waves and be responsible for the photo-electric effect with its evidence so heavily in favour of moving particles?

Now let us turn to Heisenberg's principle of indeterminacy. The principle of indeterminacy states that it is impossible to discover both the position and the velocity of a subatomic particle at one and the same time. To determine the position of such a particle, the wave length of the radiation of light must be shortened to increase the precision, and in this increase the quantum of action is a limiting case. But the more we diminish the wave length the more we increase the energy of the photons and risk its transference to the particle under investigation. In this way the measuring instrument contributes to the motion of the particle and so its motion is less precisely determinable. But to determine the velocity of a particle, we should have to employ experimental methods which would leave its position vague. Empirically, it is supposed that no instrument could be constructed which would determine with equal precision both the position and the velocity.

In other words, at the subatomic level the measurement of a particle interferes with the behaviour of the particle by contributing to it in such a way that the resultant measurements cannot be separated out into one component which is the behaviour of the object as it would be without the instrument and another component which is the contribution of the instrument. The instrument by means of which the observations are made introduces perturbations

which are always at least as large as Planck's quantum of action, h . In this way, it is concluded that it has been proved impossible for a scientist to observe phenomena at the microscopic level without interfering with it by an interchange of energy between the phenomena and his apparatus, thus rendering forever impossible reliable knowledge of the objective world. There is no possibility of ever rendering precisely both the static location in space-time of a sub-atomic particle, and its dynamic conditions simultaneously by means of observations or experiments. Due to the discontinuous nature of atomic processes, the disturbance, however small, introduced into the act of measurement by the measurement itself must always affect the calculations. There is, then, an element of interaction between the observer and the object which cannot be altogether eliminated. And so the corpuscle of matter has associated waves and the light waves have associated photons.

Before attempting an interpretation which is at variance with the currently accepted one, it will be best to say a few more words about the background.

The development of modern physics from classical physics represents something of a revolution and is not merely a smoothly continuous development. Methodological implications of the highest order have accompanied the change, and their evaluation is far from having been completed. The most general type of departure to be noted is that from the level of ordinary enlightened common-sense experience to levels of analysis unavailable to such experience. There was nothing in Newtonian mechanics or Euclidean geometry that the average enlightened individual could not himself sense, or understand with a minimum of interpretation. No propositions were advanced which called on him for understanding beyond what went on around him in a world of gross physical objects; the masses and velocities of familiar things which he was apt to encounter in his daily living. But relativity mechanics and Riemannian non-Euclidean geometry call for the behaviour of objects in ways which are not available to ordinary experience. The welding of space and time, the velocity of light as a standard, the bending of light rays in strong gravitational fields, tensor calculations of standpointlessness, all of these were foreign to the models of the world which had been established by classical physics and accepted by the ordinary man. And what was true of relativity mechanics was even more true of quantum mechanics. The quantum of action, the wave-corpuscle conflict, the strong nuclear forces were not at home in conventional conceptions. Instruments have been called into play, and recording devices yielding only pointer-readings have replaced the limited

human senses. Advanced branches of mathematics have been asked to calculate and manipulate the data so obtained. In passing from the macroscopic world to the microscopic, discreteness has replaced continuity, and so in the interpretation of experiments conducted at the subatomic level, it has been necessary to add statistical probability to partial differential equations. With the shift in emphasis went many of the concepts of classical physics. Among the most important of these, it is claimed, has been causality. The issue here has not yet been definitely settled. Most physicists take the position that causality does not exist in the microscopic world, but notable exceptions must be mentioned. To the older names of Einstein and Planck must be added those of Born, De Broglie, and, more recently, Bohm and Vigier.

II

The kind of problem raised by the disparate wave and corpuscular evidence had been known to physics before, though it is true never with such acute and widespread ramifications. Huyghens thought that light was propagated by waves, Newton believed it to be a stream of particles. At intervals throughout the succeeding centuries men as distinguished as Laplace, Poisson, Young, Fresnel, Rayleigh and Poincaré debated extensively whether the colours separated out from light by the prism were a product of the prism or belonged to the light. And the same kind of problem could arise theoretically in connection with any instrument of investigation, particularly in areas not available to ordinary experience and where as a result no comparison can be made. We know the world is not rose-coloured for we can remove the rose-coloured glasses, but we have no other way of hearing the sounds which are recorded by the radio telescope. The departure from ordinary levels of experience have heightened and intensified the problem of interpretation.

Thus far, two types of interpretation have been undertaken. One type may be called the purely physical interpretation, and the other the epistemological.

A good example of the first type is Bohr's principle of complementarity. Bohr has supposed that the very existence of the quantum of action prevents the wave and corpuscular evidence from entering into direct conflict. As the evidence for one interpretation is sharpened the other becomes correspondingly vague. The complementary of our knowledge of the position of a particle is our knowledge of its velocity; we cannot have both pieces of information in equally precise ways. But we require both: the one complements the other as

well as limiting it. When one is a function of the observed phenomena, the other becomes a function of the instrument. The consequence is that each complements the other and both are needed for the full explication of the total phenomena. The question is, however, whether there is any justification in attributing to the instrument what it reveals simply because of its own limitations from the Bohr point of view. The interference of the apparatus must be noted by the observer, and what he is actually observing is the effects of his observations on the object observed. But if we assume, then, that both observer and object can be observed, the interference of the apparatus with what it is measuring can never be final. A number of physicists have differed with Bohr, men who had no immediate alternative to propose but who insisted that they could not give up the classical orientation until it had been proved that no alternative interpretation could be found. Von Laue and Schrödinger were of this opinion; Einstein went on record as opposed to the notion of a God of Chance whose creation was of such a nature as to render forever impossible the apprehension of an objective reality.

A good example of the second type of interpretation is offered by Eddington. He would assume that the result of the indeterminacy of wave and corpuscle is sufficient evidence for the breakdown of the previously reliable scientific method. We can no longer talk in terms of observer and object, for the observer interferes with the observations by contributing to them. Because of the discreteness of subatomic processes, there are significant changes effected in the observed object by its interaction with the observer. If the Copenhagen school is correct, then science stands defeated as a method of inquiry, for all we shall ever be able to observe is the effects of the observer on the object and never the object itself. In short, physical formulations of subatomic phenomena are to consist henceforth in formulations which are partly contributed by the object under investigation and partly by the subject doing the investigating.

Both types of interpretation have proved unsatisfactory. The difficulty with the first type is that it does not succeed in making a consistent picture of subatomic physics. The two parts of a theory will not be fitted together by fiat nor bound by the assertion that the evidence for neither can be discarded. The generalization of a difficulty into one which must stand forever and in all connections does not sound like the procedure which is accepted in science: it is all too absolute and too far-reaching, its effects extend beyond the experimental evidence. There is nothing in the experiments on which the wave-particle duality is based to support the contention that such duality occurs in connection with every subatomic situation

or must stand as a permanent condition of explanation. An overarching theory which can sublate the conflicting conceptions is very much needed.

The difficulty with the second type of interpretation is that it runs counter to an implicitly accepted premise which has always been relied on in scientific inquiry, to the effect that scientific method when it operates correctly does not investigate itself but rather an independently existing objective world of nature. It is clear from the writings of some of the leaders of modern physics — Planck, Einstein and De Broglie, for instance — that they have felt uncomfortable in the presence of subjective interpretations, holding that the task of science is to investigate such a world. Philosophical empiricism has always been subjective, but scientific empiricism has always been objective. While Locke, Berkeley and Hume were reducing the meaning of experience to a subjective succession of impressions and ideas, Huyghens, Fahrenheit and Cavendish were conducting experiments to determine the outcome of experience in particular cases. There are deep and sufficient reasons why the scientist with his intractable material world to investigate and his instrumental and mathematical tools of investigation is unwilling to admit that the solution of any scientific puzzle concerned with the complex character of the segment of the natural world which he has chosen for investigation is the assumption that he himself has contributed it. For this would be to insist that he was not investigating nature at all but only his own investigations.

Other types of interpretation have been offered, none of which has been successful in convincing the majority of physicists. Bohm for instance has proposed an interpretation in which the objective reality of both corpuscle and wave is retained, the one by resembling the point masses of the classical physics and the other by resembling electric fields. For this he required a configuration space which could maintain the physical properties independently of the observer, a space having many of the advantages of the abstract 'spaces' of the mathematicians and at the same time those of the concrete space of the actual physical world. He supposes an actual orbit for the corpuscle at some point on the wave and perpendicular to it, which would be ascertainable only if we knew more than we can know of the physical components and of their interaction with the measuring devices. The structure, in short, is assumed as a constant on which the objectivity can be supported.

Bohm's theoretical results are achieved by the positing of a sub-quantum-mechanical level whose laws furnish the causality for the probabilities we observe at the quantum level. Thus causality is

always one analytical level below probability and in this way both can be retained. Experiments will have to be devised, and probably instruments as well, in order to determine the validity of Bohm's theory. Meanwhile, although it has only theoretical support and this is never enough, the evidence from this quarter is strong. But the hidden parameters he relies on will have to be supported more firmly if his theory is to be accepted generally.

In all problems arising from difficulties encountered in the interpretation of the data of experiments, one fact stands out with equal clarity. This is the fact that we never know whether we have exhausted all possible interpretations. Often indeed the proper interpretation occurs almost immediately in connection with the conduct of the experiments which have suggested the data. But more often than not, the interpretation which best fits the data must be worked out with considerable effort. The field of interpretation is never exhausted and a new — and better — one may turn up. Thus the choice of the right interpretation when neither deductively discovered nor intuitively arrived at must be left open.

Science has two problems, where it has been thought to have only one. First it has the problem of ascertaining just what are the facts. This is largely a procedural affair: hypotheses must be formulated and experiments undertaken to test them; and the result of these investigations is a set of data calling for interpretation. In a positivistically minded group of investigators the matter may be allowed to end there, on the assumption that anything further smacks of philosophy and not strict science. But the classical scientists have always been well aware that a fully developed science finds the second problem as insistent as the first and that in a sense the first is only a preparation for the second.

The second problem is the interpretation of the data. This may not be any more difficult than the first but it has its own peculiar kind of difficulty. Empirical data are interesting in themselves, but what we want to know is what can be made of them. Such interpretations are usually of two sorts: the data can suggest a broader *scientific* theory, as was the case, for instance, with Darwin's theory of natural selection, or it can suggest a broader *philosophical* theory. Both have occurred, as we have noted, in connection with the data presented by the wave and corpuscular aspects of subatomic particles, like the electron. It may of course suggest a third sort of interpretation, such as the questions it raises in connection with the methods of the given science in general. In short, it may regard itself as a special case of a more general difficulty, as indeed has happened in the present case.

III

What is to be given here, then, is an example of the second sort, the suggestion of a broad philosophical interpretation. The suggestion of a broad physical interpretation would admittedly take precedence, but would have to be contributed by physicists. The discussion of this new interpretation will fall into three divisions. It will treat of (a) methodological considerations, and then offer both (b) epistemological and (c) ontological theories of interpretation of the principle in question.

(a) **Methodological Considerations.** This is perhaps the first and only time in physics when a *failure* of observation has itself given rise to a theory concerning the nature of what was observed. And for this reason the theory may have gone further than the data justified. It is possible that the physicists have attributed their own limitations or that of their equipment to the segment of the natural world which they had tried to study.

Let us look into this aspect of the principle somewhat more closely. The principle of indeterminacy is a negative principle. It asserts what cannot be done, not what can. Either the position or the velocity of a subatomic particle, such as the electron, can be ascertained with precision, but not both simultaneously; that is what the principle states. One might ask in this case how far do the facts extend? Is this *all* the principle states? Or could one for instance insist that the principle also states that position and velocity as associated variables are multiples of a constant which is always the quantum of action? It is necessary but difficult at this point to separate out the facts from the theory. And still another separation is called for: the physical theory from the philosophical theory. Let us consider just the physical theory. Now, it happens that most if not all of the principles which have been discovered in physics and supported by physical experiments are positive, affirmative and constructive. They set forth the properties of matter and energy, not the lack of such properties. Even the second law of thermodynamics which often has a negative ring about it is affirmative. That energy tends to seek lower levels of availability is not a negative conception. That indeterminacy may be a solitary negative principle in physics is no serious charge against it; but it is grounds for suspicion. We need to know limitations as well as positive properties, but a negative principle is not necessarily even a limitation. There are reasons for suspecting that the negative principle in this instance represents a misinterpretation.

There is reason to suspect that the misinterpretation rests on a

confusion. In physics, as in all other empirical sciences, there are three distinct areas: field, science and law. There is the physical world which is the subject of investigation; there is the science of physics in which such investigations are undertaken; and there are the formulations (laws, probabilities) discovered in the physical world by the science of physics. The science of physics consists in a set of trained specialists and their equipment: laboratories, instruments and publications. Only too often some two of three areas are confused. The most fruitful source of confusion is that of the first two: the science of physics or some part of it is mistaken for the physical world. Obviously, scientists and instruments are physical objects and as such part of the physical world. But they are that part of the physical world doing the investigating, not that part which is under investigation.

With these distinctions in mind, let us return now to the principle of indeterminacy. It has arisen as the result of the discovery of limitations on inquiry in a certain direction. The instruments and techniques necessary to pursue further the investigation of the properties of subatomic phenomena interfere with these phenomena and so set limits to their inquiry. But this is a methodological limitation, not a condition of nature. It is, in short, part of the science of physics and not necessarily part of the physical world. Evidently all further inquiry in this direction must fail. The properties of the electron cannot be discovered by projecting a beam of light upon it, when the light itself consists of photons which will interact with it.

The methodological limitation can be specified still more definitely. It is an instrumental limitation. There is no proof available that other instruments or other means will not some day be devised to discover the properties of subatomic entities and processes, perhaps indirect means, for example. We can say that with our present techniques we have reached an *impasse*, and this is in fact just what the principle of indeterminacy does say and not anything more. It is one thing to claim that either the position or the velocity of an electron can be determined with precision but not both simultaneously, and quite another to assert that the electron itself has a determinate position or velocity but not both simultaneously. The inference that somehow the assertion of the former statement carries with it the truth of the latter is the error behind the currently fashionable understanding of the principle of indeterminacy.

The principle of indeterminacy, then, is methodological and, more specifically, instrumental. To suppose that it is anything more is to read an investigative limitation as a world condition.

Part of the support for the view that indeterminacy tells us some-

thing about waves and corpuscles and not about our own experiments with them comes from the mathematical language in which the formulations are expressed. The probability interpretation of wave mechanics eliminates causality as an explanatory principle and substitutes chance. Behind the statistical formulations there are asserted to be no assumed parameters.

But such an interpretation of probability has been challenged by the statisticians, notably by R. A. Fisher, and also by the physicists, as for instance by Bohm. The alternative interpretation of probability which depends upon relative frequency rather than upon degree of ignorance would allow us to slip out the observer and his instruments and substitute the atoms. That we can know the average behaviour of the atoms in a given substance and not that of each particular atom does not mean that each atom does not behave in a particular way. And this is not any the less true because the crudeness of the techniques which we have been able to develop to this point are incapable of telling us about the behaviour of each particular atom. It is an ultimate methodological error to attribute to waves and corpuscles our inability to know them simultaneously with equal precision. Ongoing processes exist in the world equally whether we know them or not, and when our techniques are responsible for perturbations in the processes in our very act of trying to know them, then we must accept the fact that such techniques have reached the point where their limitations exceed their advantages.

Two more methodological considerations remain. In addition to the question of the interpretation of the data, there is the evaluation of evidence and the logical aspects of the method employed.

The evaluation of evidence is still in its elementary stage. We have nothing of a formal discipline or of a refined technique to call on in this area. It is somewhat startling to recognize that while so much precision and calculation goes into the designing of experiments, we have as yet only the roughest methods of evaluating the data so obtained, statistical probabilities notwithstanding. For instance, we customarily use qualitative language in estimating the value of any given piece of evidence. We say that a certain experiment is 'weak', 'strong' or 'very strong' evidence for a certain theory. But we do not say how weak or how strong in quantitative terms. Now in many quantum findings the chief supporting evidence consists in the failure to find exceptions. Consider in this connection Pauli's exclusion principle. Is the evidence for this principle any other than the failure to find more than one electron in any given energy level? (Does the incompatibility of symmetrical and antisymmetrical states say anything more?) The only conditions found thus far for

electrons are the antisymmetrical states. Similarly with the indeterminacy principle, the evidence thus far has failed to reveal instances of the precise formulation of the position and velocity of an electron. But the failure to find exceptions is very 'weak' evidence for the absence of such properties from nature. 'Strong' evidence would consist in a demonstration of causal forces at work. We shall have more to say about causality shortly.

Looking next at the logical aspects of the method upon which the principle of indeterminacy depends, we discover that it was an induction from several types of experiments. Some experiments, such as the experiments of Davisson and Germer, repeated in a similar way by Thomson and Rupp, disclose only wave properties of electrons; while others, such as the photo-electric effect, disclose only corpuscular properties. From these taken together the induction was made that simultaneously both position and velocity could not be ascertained. Now, the point is: from the interpretation of the data which the principle of indeterminacy constitutes, what important consequences have been deduced? If there are none, then we have only a bare hypothesis and no degree of confirmation for it. The exercise of scientific method has its own rules, and among these rules is the proposition that the data from which an induction to any hypothesis has been made cannot be used also in confirmation of the hypothesis. But this would seem to be the procedure which has been followed in establishing with any degree of certainty the principle of indeterminacy, if we consider it to be a law of nature and not a procedural limitation.

(b) **Epistemological theories.** The currently fashionable interpretation of the principle of indeterminacy which we have been here examining contains a large element of subjectivity. Schrödinger's is perhaps the most prominent name in this connection. If we assume that it is the observer who is responsible for the apparatus, then the findings of subatomic physics are forever condemned to remain a mixture of subject and object. We shall have to admit henceforth that the method of science, in this connection at least, is a way of studying the combination of the mind of the observer and that which he has chosen to observe. Now, all epistemologies which rely on such an interpretation tend to fall into the subjective category. More and more the objective component recedes in importance into the background and the subjective component comes to the fore. At the very least a confusion results from which there is no escape. Psychology is not vindicated as the universal science (as is so often asserted) but is used instead as evidence for the defeat of science. We cannot know about anything in nature except ourselves.

Now it happens that physicists are temperamentally antagonistic to such a view, and this by definition. Devotion to science represents a detached interest, not a self-interest. The science of physics was not developed in order to find out what men think about physics but in order to ascertain what the physical world is like. An alternative proposal therefore would be more acceptable if it could be equally justified. And such a justification appears to be possible if we introduce into the epistemological picture a theory of perspectives.

This theory assumes that the observer occupies a perspective and remains in the condition of an occupant. Thus the perspective exists whether occupied or not. The perspective enables the occupant to observe some segment of the natural world by determining what segment he shall observe. Hence perspectives are enabling and limiting but not obstructive. Thus the knowledge obtained from a perspective is always partial (though not necessarily false). The perspective belongs to the object, not the observer. Every object carries with it an enormous number of perspectives each of which is capable of being occupied given suitable conditions. Hence no matter how accurate the observations, the independence of the natural world which has its being apart from the observer requires that there shall always exist unobserved appearances from unoccupied perspectives.

The theory of perspectives is introduced here to account for the apparatus as essential to the collection of the data. There are limits to the data so collected, this is what the theory tells us. It does not tell us that the limits are themselves the data. For to suppose that what the introduction of the perspective does is to tell us not about the data but about the occupation of the perspective is to suppose that the perspective itself *is* the data and so makes the scientist and his method the subject-matter of science.

The condition of that which can be learned by a particular observer employing a certain instrument is not dependent upon the observer or his instrument but is relative to the perspective which they occupy. Presumably, another observer with a similar instrument would obtain the same results. The inexhaustible richness of the natural world suggests that a complete description of any phenomenon would have to include readings taken from an infinite number of perspectives. For every entity, every process, in nature carries around in its own set of perspectives, a set which is always large and may be supposed to be infinite. Any one of these perspectives may be occupied at any time to produce the knowledge in the occupant of the perspective which can be acquired from that perspective. In such a case, it cannot be claimed then that the subject has contributed anything to the knowledge, only that he has obtained

it from the perspective. Thus any operation involving a measurement does not create a new condition but extracts from existing conditions one of the pieces of information which it contains potentially. It may be remarked that to the extent to which the operation of measurement interferes with the phenomenon to be measured, the experiment itself is rendered a failure.

It comes down to this, that success in the operation of any instance of the scientific method tells us something about the nature of the real world which exists objectively and independently of us, whereas failure in the same connection tells us only about our instruments and ourselves. Truth has an object, falsity does not. The trouble with any attempt to attribute to our methods the characteristics of the subject-matter which they are employed in investigating is that it assumes that any theory can be reduced to a corresponding set of operations and hence carries with it an ultimate scepticism as to the ability of the method to apprehend anything in the external world. The failure of the instruments now at the command of the physicists to determine both the position and the velocity of the electron simultaneously and with equal precision is just that: a failure of instruments and not a law of nature. Other perspectives are possible, and if occupied might yield better results.

The theory of perspectives, by means of which we hope to save the phenomena and at the same time get rid of the necessity of making a subjective interpretation, suggests that the perspective is part of the object. Bohr's principle of complementarity may be the best compromise under the circumstances, but it, too, must be only a compromise and not the kind of solution that could come from further discoveries and perhaps from a broader theory which could not only embrace such facts and lesser theories as we know separately about the wave and the corpuscle but even require them. So much for the physical theory. The epistemological theory can never be demonstrated, in as much as epistemology does not lend itself in the same way to empirical verification. The evidence for epistemology must be more in the nature of the kind of consistency whereby we verify all abstract structures, such as for instance mathematical systems. And for the consistency of epistemology we need not only an internal consistency of its parts but also the consistency between epistemology and ontology as parts of a larger whole. Thus we need also now to introduce ontological considerations.

(c) **Ontological theories.** Ontologies are not 'proved', they are assumed. Nevertheless the assumptions can be justified on both theoretical and practical grounds. The theoretical grounds are those of consistency and completeness. The practical grounds are those of

explanatory usefulness. We shall argue here that the explanation of the principle of indeterminacy must rest on its subsumption by a broader principle of explanation, and this time one derived from methodology. Earlier we called attention to the qualitative nature of evaluative evidence. The language of qualitatively expressed evidence is still in a crude stage; the language of quantitative evidence is far more precise. But it suffers from the fact that it has no independence: quantitative evidence is always offered for or against some qualitative entity. The actual physical world of matter in motion in space-time is an inherently qualitative affair, and to its analytical elements we attach appropriate quantities by means of measurement. The qualitative nature of the physical world must always be taken into the account in the science of physics. We are now ready to transform this into a methodological principle.

So long as evidence is required to support a content which includes qualities, all proof must fall short of certainty.

This means that experiments cannot be carried out with any degree of accuracy but will lead at best only to closely similar statistics. The qualitative distinction between wave and corpuscle has to be accounted for ontologically, then, and not in terms of the subjective ignorance of the connection between them. Qualities and relations are the parts of abstract structures which are needed to account for empirical material. Perfectly abstract structures, such as those of mathematics, eliminate from qualities. But physical systems are limited in this regard; they are required to account for qualities in relation. Bohm, in fact, posits a 'qualitative infinity of nature'. Actual qualities are properties of objects in the external world, not pieces of ignorance. And any complete account must provide for them.

It is possible to be misled by the fact that in the equations qualities are often represented by their corresponding relations. The wave function, ψ , represents a certain form. But the form it represents always has a content in the actual physical world. We are, after all, studying the properties of a concrete world, and though we do it *in abstracto* so severely as to include many types of abstract 'spaces' which do not correspond entirely with the space of common experience, it is the space of common experience to which we wish to refer it.

Here perhaps is the crux of the error. The actual world is confused with the world of ordinary common experience. But the world of common experience is part of the actual world, not the whole of it. The actual world is made up of whatever things and events are actual. These could be entities and processes — particles, waves,

fields and interactions, for instance — beyond the levels available to ordinary experience. The speed of light is a property of part of the actual world when we are referring to a particular ray of light, and so are hydrogen atoms when we are referring to a particular hydrogen gas: the speed of the ray of light from *this* beam, the hydrogen gas in *that* cylinder.

The transition from classical physics to modern physics has brought with it, as we have already noted, many problems involving ordinary experience. The world disclosed to ordinary experience has always been assumed to be the entire real world. We leave it when we resort to instruments which either extend the senses, like the telescope, or report to them indirectly, like the scintillation counter. When we depart from ordinary experience we assume that we have entered into a set of abstractions. But the world disclosed by means of instruments is also a part of the concrete world. The primary lesson of modern physics is that the concrete world is deeper and broader than that segment of it which is disclosed by ordinary experience. The concrete world does contain the disclosures of ordinary experience, and there is indeed in it what the unaided senses report to be there. But there is also a great deal more: the subatomic phenomena reported by quantum mechanics, and the cosmic phenomena reported by relativity mechanics.

Physics has not shifted altogether from the macroscopic to the microscopic, from the area available to ordinary experience to an area beyond the reach of ordinary experience. There are after all areas in physics which did not undergo such a shift, and which are equally viable under classical or modern physics. Thermodynamics is undisturbed by the change from classical mechanics to relativity and quantum mechanics. Folded within the concrete world there are many levels which analysis and synthesis are able to disclose with the aid of instrumental extension and mathematical interpretation. Classical physics accounted for the theory underlying the disclosures of ordinary experience. Modern physics accounts for the theory underlying those segments of the external world of matter in motion unavailable to ordinary experience.

We shall need a name to describe the area which we have separated out. Let us call it the world disclosed to instrumental experience. The concrete world, then, the objective and independent world of physical objects in motion, shall be said to consist of two segments: the segment consisting of that part of the concrete world disclosed to ordinary experience, and the segment consisting of that part of the concrete world disclosed to instruments and described in mathematics. Both segments of the concrete world are assumed to exist

objectively, to be equally independent of the observer and to be equally real. The two segments, it must be clearly understood, are methodological merely: we have named them and considered them separately by how we came to know about them. But they are not themselves conditioned by these epistemological efforts. Ontologically, the concrete world is what it is and all of a piece. Epistemologically, we need handles for ready reference to the parts of the concrete world with which we deal separately.

Let us return now to consider certain features of this concrete world to which attention has been called by our methodological principle, in connection with the distinction between the world of ordinary experience and the world of instrumental experience. The point is just this: that the world of instrumental experience also contains qualities. (It may be parenthetically remarked that it is equally true that the world of ordinary experience also contains relations, a fact which could have immense consequences if taken into the account, but that is not our task here.) It is true that the instruments were not designed to detect qualities; most instruments in fact have the chief purpose of ruling them out: it is the measurement of quantities and not the specification of qualities that we accomplish with the aid of instruments. But it is important for drawing general conclusions to remember that the world in which we find quantities by means of instruments contains qualities also.

It should now be possible to bring our principle and our newly asserted fact to bear upon the current subatomic objections to the existence of causality. If it is true that so long as evidence is required to support a content which includes qualities all proof must fall short of certainty, and that the area disclosed to instrumental experience contains qualities, then causality holds as a principle in the subatomic world.

This argument will need support. No one will deny the contention we have quoted earlier, namely, that there are subjectivistic dangers which threaten the very existence of scientific method as reliable in allowing the probability interpretation of the quantum to suggest that measurement may constitute that which is measured. Real determinism and causality are thereby abrogated. The argument turns on the possibility of showing that the quantum of action is a pivotal relation between the qualities of wave and corpuscle which are themselves continuous. There are in nature hierarchies of levels, and the existence of breaks between the levels does not refute the existence of the hierarchy. The wave series at the physical level and the integrative levels of the scientific fields are well-known instances. The break in the physical world between the macrocosmic and

microcosmic is not the only one. What we have called the world disclosed to instrumental experience has its own breaks. We know one: nuclear phenomena are in many respects quite different from atomic phenomena. Curiously, the smaller world of the nucleus is also the stronger. Forces are found at work holding neutron and proton together which are millions of times more powerful than those that bind electron to nucleus. Moreover, Bohm, as we have already noted, has suggested the existence of a sub-quantum-mechanical level. Nature is more extensive than our instruments.

Discreteness does not preclude interaction. The quantum jump does not mean that causality is lost. What has been refuted by quantum mechanics is perhaps the absoluteness of causality. Causality could be absolute only in an ideal world. In the actual world we are dealing with a more complex and confused situation. Calculations of *a posteriori* probability are all that remain of an admissible nature, after causal law is excluded. We can if we look carefully see the causal nature of statistical law: the parameter considered as a limiting case which a given population approaches more closely as the co-operating individual processes increase in number. The pure chance of statistical averages is how the law of causality works itself out. Thus causality is absolute for ideal formulations but must be modified in application by the extenuating circumstances of chance. The mixture of chance and cause is what we are confronted with in the actual world. Determinism needs to be retained but only as modified by chance. According to Bohm's theory, neither determinism nor indeterminism is absolute, but instead each is reflected into the other as a limiting case. Nothing in the actual world is absolute, and all statements made in ideal terms are subject to actual qualification by extenuating circumstances. Thus neither determinism nor chance can be applied strictly or without modification by the other, and neither can be left out of the calculations. This is necessary because no principles are fulfilled ideally while none fails to work within limits. We need a great deal more information than we hope to obtain in order completely to determine a physical system. But it does no good meanwhile to assert that the lack of information is part of the system.

The classic alternative would retain a rigid determinism of parts, a determinism predictable absolutely for every electron, leading to a strict causal interpretation of all natural phenomena. But the more fashionable modern alternative would introduce the assertion of an absolute chance whose final end in total dispersion would lead to equal distribution and hence to a rigid determinism implying strict causality. In both the classic and the fashionable interpretations,

then, we start from different data but finish with strict causality. Only in the former, it was placed at the beginning, while in the latter it has been shifted to the end. We must not be beguiled by the character of the data. It now issues from a different analytic level. But we have not sufficiently explored the possible interpretations. There is a reason why statistical probability lends itself to subatomic phenomena and not to large-scale objects and events. We can in the former case assemble more data, not because it is more indeterminate but because we have greater access to it.

Currently fashionable interpretations, in short, read small-scale phenomena as being so entirely different in character from large-scale phenomena that the same laws do not apply to them. And these differences have been extended to the law of causality. The evidence has consisted in limitations arising from the methods of investigation. Afterwards the difficulties have been transformed into conditions of nature, a procedure which is without warrant. Admittedly, the difficulties exist. But they will have to be met by the physicists and on physical grounds. There is no reason to seize upon them in order to deduce a whole philosophy.

A comprehensive interpretation cannot be made up of only those points where investigation runs into trouble. Philosophy is something more than science in distress. A proper philosophy of science would agree with science most where the scientific method was working well. The consistent and complete interpretation of science would be one which when called on could explain the difficulties as special cases of general principles which were still reliable.

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REASON AND EXPERIENCE IN ETHICS*

By JULIUS KRAFT

1 *The Impasse of Ethics and its Presupposition*

THE development of ethics in the twentieth century has produced influential tendencies which are equivalent to a denial of ethics in the strict sense of the term, i.e. of a system of true assertions determining the necessary and sufficient properties of the not arbitrarily fixed tasks of man. Emotivism (Stevenson), decisionism (Sartre) and sceptical nominalism are instances of this denial. There are others, especially the revival of moral theology (based on revelation) and of ethical scepticism, presented as a simple corollary of biologicistic, psychologicistic and sociologicistic doctrines, which are, of course, not at all consequences of biology, psychology and sociology proper.

Modern denials of ethics represent a remarkable contrast to the self-confidence exhibited by such divergent eighteenth- and nineteenth-century ethical systems as the Kantian, the utilitarian and the Hegelian.

This loss of self-confidence is not only significant from the standpoint of the history and sociology of culture; it also poses a logical and epistemological problem which can be formulated as follows: Is there a fundamental presupposition common to the indicated stages of development of ethics in the nineteenth and twentieth centuries, which has not yet been explicitly formulated and which should be subjected to scrutiny?

Although the first impression may speak against it, there is such a presupposition, and it can be easily detected. To this end it is appropriate to make use of the distinction between an aprioristic and an empiristic type of ethics, the Kantian system belonging to the former, the utilitarian to the latter.

The epistemological difference between aprioristic and empiristic ethics is so great that it seems to exclude any common epistemological trace of the kind indicated. Yet sometimes it is necessary to formulate explicitly what does not at first seem worth special consideration.

It is common knowledge that aprioristic ethics has always indulged in an arbitrary construction of man (section 4) and society, and empiristic ethics in pseudo-syllogisms aiming in vain at deriving ethical laws from existing or invented facts of human life. Thus, the aprioristic side cannot cope with the anthropological facts, the empiristic side cannot overcome the underderivability of ethical goals

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from those facts. These different kinds of failure, however, have a common epistemological basis: both systems assume a 'pure' basis for themselves, either a purely empirical or a purely *a priori* one. However, a pure basis cannot suffice for ethics, which necessarily incorporates into its system specific value-elements and, in addition, anthropological ones. Every ethical system rests not on a pure, but on a mixed epistemological basis, composed of *a priori* and empirical elements. Ethics is a part of applied, not of pure philosophy. Legitimate 'pure' ethics, as distinguished from 'applied' ethics, contains ethical judgments about lasting human situations and thereby also the presuppositions of the treatment of changing human conditions.

It is, then, the neglect of the applied-philosophical character of ethics (section 6) which constitutes the common presupposition we were looking for, in other words, the assertion that ethics rests on a pure foundation. A useful corollary of this axiom is the exclusive disjunction: ethics is either a purely rational or a purely empirical system.

Since ethics in the defined strict sense is neither the one nor the other, its denial follows as a logical consequence of this assumed alternative.

It is therefore impossible to overcome the impasse of ethics by an attempt to construct new systems of either aprioristic or empiristic ethics; but it is possible to overcome it through following up the idea of a mixed epistemological foundation of ethics.

2. Rational Presuppositions of Ethics

A search for the different types of presuppositions in ethics is not dependent upon the assumption of the validity of ethics. It can be undertaken by starting from any ethical assertion, whether valid or not, since they all exhibit just those formal features needed.

Consider, for example, the false assertion: 'Might is right'.

If we are to examine this saying, its ethical, as distinct from its sociological, meaning must first of all be explicitly formulated. 'Might is right' may mean the true sociological assertion that legal institutions are determined by power. It may also mean that power is the source of right and wrong (in the moral sense of the words) or, eliminating the metaphorical word 'source', that power is connected with the right to impose it. To the right to impose power would then correspond the duty to accept that imposition. Without entering into a systematic examination of the problem whether there could be at all a normativity of power (a special, but typical case of Jellinek's 'normativity of the factual'), we can say that normativity, applied to a social situation, in any case characterizes the asserted kind of

connection between imposition of power and its acceptance. Normativity consequently holds for a social situation, determining an ought-relation between the individuals finding themselves in that situation. It may also be described as a specific relation, R_{no} , the subscript 'no' indicating its normative character.

R_{no} is objective, i.e. not established by convention, it is non-logical, and it is not reducible to relations of mathematics or natural science. To assume a relation R_{no} , or the ought-relation with those three properties, means to make use of a specific rational presupposition, indeed of a most characteristic rational presupposition of ethics which must be safeguarded against being confused with psycho-physical facts like 'mores', positive statutes, commands, regulations or authority claims backed up by courts and police. To have established incisively this normativity relation and to have insisted upon it is a lasting achievement of the Kantian ethics of the categorical imperative, an achievement which remains unaffected even by the most cogent criticism of some of its other aspects (e.g. its formalism).

In his *System of Ethics*,¹ which represents a constructive revival of Kantian ethics in the twentieth century, Nelson has introduced a striking generalization of the concept of normativity. This generalization identifies a common feature of all ethical laws, whether normative or not: they all determine categorical tasks, the categorical imperative being a subclass of these laws. The concept of a categorical task supersedes the vague notions of value which enjoy so much popularity in ethics although they do not permit a sharp delineation of the specific ethical evaluation. This evaluation always proceeds from the standpoint of certain categorical tasks the choice of which, because of the objectivity of ethics, is not arbitrary. The Nelsonian generalization permits then to consider the relation R_{no} as a subclass of the relation R_{ta} , the subscript 'ta' indicating the categorical task established by the relation. R_{ta} applies to the relation between pertinent individuals and actions demanded of them.

The distinction between norm and task is important for the concept of characteristics of ethical law. The ethical law, like any law, is a relation, but, in contradistinction to logical, mathematical or physical relations, it contains the element of categorical demand. The appropriate logical form for asserting ethical laws is, therefore, a hypothetical proposition of this kind: If given a certain human situation — individual or social — there is a certain categorical task.

¹ Yale University Press, 1956, p. 167; see also my 'Introduction', pp. xiii ff. and the review of the book by Blanshard in *Ratio*, vol. I, no. 2, 1958, pp. 177 ff.

It is not within the scope of the present essay — which is concerned with establishing and elucidating the applied-philosophical character of ethics (section 1) and with showing some of the consequences which follow (sections 3, 4, 6) — to consider systematically the problem of the content of ethical tasks, that stumbling block of Kantian ethics in its actual form (although much less in its clearly indicated systematic intentions which go beyond formalism).

In any case, no system of ethics can even face that problem which disregards the significance of the relation R_{ta} for ethics, a disregard to be found e.g. in John Stuart Mill's psychologistic and Durkheim's sociologistic ethics. The most incisive and comprehensive modern attempt at solving the problems of ethical contents within the context of the task-relationship was undertaken by Nelson in his theories of justice and of 'rational self-determination'.²

But ethics requires in addition to R_{ta} still another class of relations: rights and duties, e.g. the assumed right of power imposition and the corresponding duty of accepting that imposition, which delineate in a normative manner spheres of influence between individuals. To exercise influence and to be subjected to influence are also based on a relation, not on a normative one, but a relation of forces, i.e. a relation of nature (R_{na}). Ethics requires then, in addition to the R_{no} (or R_{ta}), the R_{na} assumption which also refers to an objective and non-logical relation. R_{no} (or R_{ta}) is valid for a system organized according to R_{na} . This last requirement constitutes another kind of rational presupposition of ethics, which is mostly taken for granted without, however, any consistent development of its far-reaching consequences (section 4). Generally speaking, R_{na} is equivalent to the assumption of anthropological and especially sociological naturalism. According to R_{na} individuals and society belong to the spatio-temporal system called nature, one of whose characteristics is that its elements are acting as forces.

3. *Empirical Presuppositions of Ethics*

It is not disputed that the application of ethics to concrete situations in individual, social and political life requires pertinent data of experience,³ but it is a highly controversial question whether a system of pure *a priori* ethics in the strict sense is possible, i.e. a system containing no empirical concepts at all.

Actually such a system is impossible, owing to the fact that ethical laws hold for human beings, and the concept of man (and the

² loc. cit., pp. 86 ff., 180 ff.

³ This requirement is impressively discussed on the basis of important classical and modern sources, by M. Ginsberg in *Reason and Experience in Ethics*, London, 1956.

same holds, of course, for the concept of society) is an empirical one. It is true, as Nelson clearly stressed,⁴ that ethics does not require the assumption of the existence of human beings, but this correct observation does not make ethics a purely *a priori* system. It frees ethics only from the use of existential empirical assertions, but not from the use of empirical assumptions.

Those assumptions belong particularly, though not exclusively, to the field of psychology. Classical instances concern the will, interest and intellect of human beings linked with specifications introduced by the respective ethical system. Furthermore, a comprehensive ethical system makes use of concepts such as 'character', 'responsibility', 'man in isolation' and 'man in contact with other men', 'non-imposed and imposed relations between men' — all of which contain at least certain empirical characteristics.

Empirical concepts and assumptions are thus elements of all ethical disciplines, starting with the most general ones and ending with the philosophy of education, of law and of politics.

These empirical abstractions are drawn from psychological or sociological experience, and they connect ethics with these experiential fields. Ethics is, therefore, dependent on basic psychological and sociological experiences although, in view of its *ta* relation it cannot be reduced to them.

This conclusion does not touch the non-empirical features of ethical principles, no matter whether the latter are valid or not. The assertion that every human being possesses rights which cannot be renounced or the assertion that love ought to take preference over justice transcend experience. At the same time they refer to 'oughts' addressed to human beings and thus to experience.

4. *Aprioristic Construction of Man in Ethics*

It is precisely this consequence that cannot be accepted by a purely-aprioristic ethics. Such a system is forced into attempting an *a priori* construction of man as the field of application of ethical laws.

Even Kant, the great defender of experience, has to yield to this necessity. Although extensively employing psychological concepts in his various contributions to ethics, he introduces as the very subject of moral obligation 'the intelligible character' of man, i.e. a transcendent (or noumenal in contradistinction to phenomenal) object. This transcendent object is supposed to determine, in the last analysis, the behaviour of man as given in experience: an assumption, which is incompatible with the Kantian postulate that spatio-temporal entities like man must be described and explained

⁴ *System of Ethics*, p. 54.

exclusively within the limitations of experience (to vary the Kantian expression 'within the limitations of reason'). This contradiction can be resolved in two ways: by eliminating the empirical interpretation of man or by transferring the idea of 'the intelligible character of man' from the presuppositions of ethics wholly to the philosophy of religion, where it actually belongs. Hegel followed the first way and arrived then *a priori* at such conclusions as the necessary existence of death, different sexes, state and history. Conditions of this kind have provided the doctrine of the meaninglessness of philosophy with effective propaganda material. To follow the second way means to accept all the consequences which follow from the fact that interest and intellect are phenomena of nature and, therefore, subject to its laws. Ethical laws cannot be addressed to a will (or an intellect) not subject to the laws of nature and in this sense free.

It is apparent that these consequences point to the need to re-examine the applicability of the doctrine of free will to ethics. A systematic treatment of this old riddle will do well to heed the Kantian admonition not to count for its solution on the petty splitting of words. The following considerations may help to pave the way for such a systematic treatment.

Kant introduces the principle of free will by his famous formula: You can, since you ought.

Transformed into an explicitly formulated syllogism this formula asserts:

- (1) If you ought, you can.
- (2) You ought.
- (3) You can.

This sequence is conclusive. The only problem is if and in what sense (1) and (2) are valid. The answer may be found by transposing (1), which results in: If you cannot, you ought not (1a). (This is, by the way, equivalent to the well-known principle of Roman law: 'Ultra posse nemo obligatur'.)

In particular this means that beyond the limits of a given will-power no obligation exists. Or, applied to (1): its explicit (and, of course, analytical) meaning is then: if you have a certain will-power and an obligation to use it, then you are able to do so. Will-power and its use are psychological phenomena the quantitative features of which differ individually. There is no uniform strength of will, and accordingly there is no uniform ethical 'carrying capacity'. According to disposition and training of the will, it has tasks to fulfil which vary according to the degree of exertion of which it is capable. The Kantian claim that (1) establishes analytically free will, i.e. a will

causally undetermined and not finite in its power, as a presupposition of duty is not justified. It confuses the categorical, i.e. the unconditional character of duty itself with the demand of its fulfilment under all circumstances, and infers consequently the possibility of a fulfilment under all circumstances, i.e. an unconditional fulfilment. A fulfilment under all circumstances would include also those in which a fulfilment is impossible because of the limits of the individually given will-power. It would, thus, require a will-power not bound by the limitations of nature, in short: an unconditional will-power. But the categorical or unconditional character of a duty is fully compatible with the restricted (or conditional) character of its fulfilment. If this was not the case, ethical laws would be inapplicable to human beings who, as psychophysical products of nature, are not endowed with infinite energies of any kind. Although limited, human will-power can rise to tremendous heights, certainly far beyond the limits imagined by the individual concerned before he tried his utmost. It may be safely asserted that man has a tendency to remain far behind the possibilities of his will.

However, this psychological observation (although important for applied ethics) does not touch the main points, namely:

- (1) Kant's syllogism does not establish the principle of free will.
- (2) This principle is not a presupposition of ethics.

Yet, in spite of (1) and (2), the principle of free will is not a fiction. Although it has no place in either ethics or psychology, it does not follow that it has no legitimacy at all. It has its place in a consideration of man, not as a product of nature, nor as one to whom tasks are addressed, but as an element of things in their eternal, i.e. their timeless aspect.

Whether there is in fact such an aspect of things or not, it is within its realm that the freedom of the will, the intelligible character of man, as Kant called it, is to be found. But since this intelligible character is timeless, no ethical demands can be put to it the realization of which necessarily requires time. This restriction must be added to the Kantian principle of the intelligible character of man if we are to arrive at a sharper delineation of ethics and the philosophy of religion. To consider man a creature endowed with a will free from the restrictions of the temporal order of things is one thing; to consider him a product of nature and an object of ethical demands is another.⁵

⁵ An elaboration of this threefold aspect of man as product of nature, as responsible person and as creature can be found in my paper: *Der anthropologische Naturalismus und seine Schranken*, Proceedings of the XIIth International Congress of Philosophy, 1959 (in preparation).

The compatibility of these three aspects of man cannot be proved without examining the difference between the phenomenal and the noumenal aspect of reality, this philosophical idea which is as difficult as it is sublime and which requires a reconsideration of the problems with which Kant dealt in his theory of the antinomies.

5. *The Autonomy of Ethics*

Disregarding the deceptive terminological devices for pseudo-solutions of profound problems, a systematic investigation will trace two decisive contributions to the establishment of ethics (as defined in section 1): the recognition that ethical evaluations are based on reason and that man, the subject of ethical tasks, is a part of nature and, therefore, an object of empirical understanding. The first discovery is connected with the Platonic-Kantian tradition, the second with anthropological naturalism as practised by biology, psychology and sociology. The principle of the mixed rational-empirical basis of ethics is a methodological consequence of this two-fold approach to man. A consistent systematic application of this methodological principle within the different disciplines of ethics is still lacking; but it has always been and still is the guiding line for its most developed parts.

Contrariwise, to the extent that this principle is increasingly disregarded, ethics is more and more removed from the field of knowledge until it finally falls victim to dogma (traditionalistic or modernistic, as the case may be).

This disjunction between ethical knowledge and ethical dogma is of fundamental, theoretical and practical significance and it therefore deserves further consideration. Ethics practised as dogmatics, and that means as an authoritarian discipline, is a consequence of its insufficiently developed methodology. Before the court of authority, reasons, whether empirical or rational, have no standing. Authoritarian ethics, based as it is on arbitrariness, can freely operate with arbitrary ethical laws applied to arbitrarily determined fields of application. Morality by arbitrariness is its watchword as evidenced in modern times in the doctrines and practices of totalitarian dictatorships.

Authoritarian ethics has been a complex and powerful phenomenon in the history of civilization up to the present day. Its prototype is theological ethics, to be distinguished from the allegorical ethical wisdom contained in the religious traditions of mankind. The arguments of theological ethics rest on dogma and it is inclined to advance vague and sweeping generalities about human nature and

the goals of human life. When necessary, these generalities are then brought down to earth without further logical ado.

The genuine brother of theological ethics (and far too little identified as such) is what may be called legalistic ethics. Legalistic ethics is derived not from religious, but from legal dogmas, i.e. from the assumption of the obligatory power of any established legal order⁶ however tyrannical it may be. Philosophers should not deceive themselves: the combined forces of theological and legalistic ethics have influenced human life incomparably more than their own lofty structures have ever been able to do.

The extension of this influence can be adequately appreciated only by realizing that religious dogma may be either supernaturalistic or naturalistic.

The latter became one of the decisive features of the twentieth century, particularly through the political religions of Communism and National Socialism in both of which the traditional separation of the temporal and the spiritual order of things and their 'servants' is eliminated. Both actually establish new theocracies dedicated to worldly deities. Their respective ethical dogmas, which make claims on all spheres of private and public life and which have their philosophical roots in Hegel and Nietzsche,⁷ advance an equally distorted view of human life and its goals. The bombastic phraseology of these dogmas barely hides their essential animalism, i.e. the denial of man's rational powers and consequently of his ethical tasks. This (and similar) dogmatic fog, systematically spread and supported by powerful parties and states, is the twentieth-century opium of the people which makes them lose their orientation as responsible individuals by persuading them that there are no individuals.

Against the ethics of authority stands the ethics of knowledge based not on arbitrariness, but on objective, rational-empirical requirements (sections 2, 3). This exclusive logical dependence upon knowledge and the corresponding logical independence of everything else constitutes the autonomy of ethics. Much lipservice has been paid to this principle⁸ but great efforts still lie ahead if it is to receive more than verbal recognition. Only by such efforts can the present self-destruction of ethics finally be overcome and its reconstruction taken in hand with the support of the two great theoretical achievements of the past, symbolized by the names of

⁶ Certain logical consequences of this assumption are discussed in my essay: 'Paradoxien des positiven Rechts', *Revue internationale de la théorie du droit*, vol. IX, pp. 270 ff., 1935.

⁷ This is discussed in greater detail in my essay 'Philosophie, Erfahrungswissenschaft und politisches Weltbild', *Archiv für Philosophie*, vol. III, no. 2, pp. 186 ff.

⁸ Compare the analogous 'postulate of an autonomous philosophy of religion' expounded in my essay: 'Religion, Experience and Metaphysics', *Ratio*, vol. I, no. 1, 1958, p. 36.

Kant and Darwin: the philosopher of the categorical imperative and the discoverer of the theory of evolution, that great step towards determining the place of man within nature.

6. *Pure Ethics as Applied Philosophy*

I

The methodological principle discussed in the present paper may also be expressed by the short — only seemingly paradoxical — formula: Pure ethics is a part of applied philosophy. This formula constitutes at the same time an important meeting-point between rationalism and empiricism. It upholds the necessity of a rational basis for ethical evaluation, but recognizes at the same time that no systematization of ethics is possible without empirical assumptions. Ethics conceived as a purely *a priori* or a purely empirical discipline is even a contradictory undertaking. It means either to construct psychological or sociological facts *a priori* or to construct ethical goals empirically. Both are logically impossible.

Ethics, therefore, requires a correction of the traditional antithesis of apriorism and empiricism; it must be established that the epistemological character of ethics is a mixed one and needs the concept of a rational-empirical system. This consequence is in any case connected with the nature of ethics in the strict sense of the term as defined in section 1. Inquiries of a sociological, psychological or logical character made since Spencer, Wundt and the rise of symbolic logic, although sometimes called ethics and in themselves interesting without ever being a substitute for the quest of knowledge about the goals of human life, have, of course, an entirely different methodological character.

The rational component of ethics is bound to evoke the misgivings of both empiricists and irrationalists. Yet it must be firmly upheld. Without it ethics loses its very nerve centre and floats in the open ocean of human life without a steering-wheel.

The often-heard lamentation that there is no such steering-wheel and that we are simply condemned to float, is empirically false. This lamentation reveals a lack of contact both with the deeper sustaining energies of man and with his increasing understanding reached by the efforts of ethics through the millennia.

II

There are two typical approaches to ethics which, although very persuasive and widespread, actually destroy it. The first starts from a pseudo-realistic construction of human nature; the second from the

perfection of the transcendent realm of things. The first is 'anthropologicistic' (operating with entities like 'longing for happiness', 'will to power', 'libido', 'thrownness into the world' (Heidegger)); the second is 'religionistic'. Both assume the methodological principles: If there is ethics, then it is based either on anthropology or on religion.

This starting point, which is not identical with the other dogmatic alternative between a purely empirical and a purely *a priori* ethics, leads to two important conclusions. If it is combined with the negation of the then-clause, the negation of the if-clause follows. If combined with the assertion of the if-clause, the assertion of the then-clause follows.

Now, the negation of the then-clause is a valid statement since no logical transition is possible from either anthropological facts or the perfection of the eternal to tasks for human beings. The anthropological approach is too low, the religious approach too high for that end. Therefore, again ethical nihilism (section 1) results in both cases.

On the other hand the affirmation of ethics, if combined with the aforementioned methodological principle leads inevitably to an impossible epistemological basis and such a basis, i.e. such a criterion of its validity, makes ethics itself impossible.

These consequences are in no way invalidated by the fact that 'anthropologicistic' or 'religionistic' approaches to ethics may contain profound flashes of insight.

It would indeed be more than foolish to deny the great richness of those flashes in sources like Nietzsche, Freud and the biblical books. Yet the fact remains that notions like 'will to power', 'libido' and 'holiness of the creator' are all instances of categories not fitted for the foundation of ethics. It is, therefore, not by chance that this conceptual apparatus has produced alternately the rejection of all ethics or the construction of arbitrary ethical doctrines, among them the fiction that the concept of a task must give way to the myth of a destiny of man to be fulfilled on earth or in heaven. However, according to need, those 'destinies' become amplified by the strictest tasks, namely by duties: consistency is no virtue of 'anthropologicistic' or 'religionistic' ethics. It should be specifically noted that the ethical dogmas of modern naturalistic theocracies (section 5) which relate the rules of service — defined as duty, destiny or both — to certain 'sociolatric' (Deploige) dogmas, combine both anthropological and religionistic features. Against this cult of modern servitude to the idols of race and class stands the ethics of justice and freedom the basis of which is neither fictitious anthropology nor religion, but practical reason and experience.

III

This conclusion stands, modern debunking talk about 'so-called practical reason' (Ross) notwithstanding. Even more than that: ethical relativism, in the exigencies of actual life, becomes involved in a paradox. The acting ethical relativist, like everyone else, claims rights and duties in his social contacts. But by those claims he contradicts his relativistic theory which does not permit claims of rights and duties which always involve a denial of ethical relativism.

A symbolic illustration of this paradoxical situation of the acting relativist in the twentieth century is the relation between Pareto and Mussolini. According to Pareto's sociology there cannot be any objective ethical judgment. However as senator in the Fascist state the same Pareto relied upon the validity of Mussolini's totalitarian political pseudo-ethics. (And Pareto's secret reservation which he probably made — a logically inessential psychological factor — does not remove this contradiction.) Faced with the paradox of the acting relativist, one has the choice either to abandon ethical relativism altogether or to accept illogicality. The latter course, however, cannot suit ethical relativism at all since it deprives it of the tools of logic.

Those tools, if put to proper analytical use, help in many respects in the clarification and defence of a valid theory of categorical tasks. The following paragraphs will further illustrate this.

1. There is a classical controversy about the ethical preferability of a life of action as against a life of contemplation. It has become customary to note this controversy (or others), adding perhaps some psychological or sociological comments at random, while abandoning all attempts to take a reasoned ethical stand on the issue in question.

However, such a stand can be taken if different aspects of the controversy are taken into account. First it must be realized that action deserves preference whenever a duty demands it. Nobody can escape into contemplation if he ought to act.

It is an entirely different matter if no duty stands in the way of contemplation. Among the ideals of human life the ideal of contemplation certainly occupies a central place. And it is a problem, only decidable on the basis of individual disposition, whether devotion to a life of contemplation would mean for the individual concerned a fulfilment of his highest human possibilities.

There remains still the important special case of the ideal of religious contemplation to be considered. Understood as the search for religious truth it may be called a fundamental specification of the ideal of contemplation pursued by the deepest thinkers, artists and

prophets of mankind. This ideal must, however, be strictly distinguished from an alleged mission of sanctification by contemplation techniques. The concept of mission has no place in the whole field of philosophy and particularly not in ethics: The human *amor dei intellectualis* may not confuse the borderlines which separate human life, ethical tasks and eternity.

2. This separation must be kept in mind when defining one's standpoint on another important controversy, namely that concerning Epicureanism versus asceticism. Epicureanism can at least be practised (with what kind of ethical results is another question), but asceticism cannot. We can decrease our sensual satisfactions, but we cannot eliminate them altogether. This psycho-physical restriction even holds for the hermit in the desert. But what is the reason for adhering to asceticism despite its obvious practical impossibility? It is the confusion between an imitation of the divine in its superiority to human needs (which means an attempt to break through the limitations of human nature) and the duties of daily life. Through this confusion the very terms 'morality' and 'virtue' have acquired a kind of stuffy overtone which makes them suspect. This suspicion and its libertinistic abuse can only be overcome by a thorough analysis of the presuppositions of both Epicureanism and asceticism.

3. A recurring argument against the validity of ethics is the triumphant reference to the diversity of mores. Yet this triumph is far too premature. In the first place, there are moral and immoral mores which means that this diversity becomes drastically diminished. In the second place, different circumstances of life justify different mores. In the third place, even in a given situation of life different mores may be ethically equally possible, i.e. they all may keep within the ethically required limitations.

There remains the fact that mores as such are regulations facing individuals as certain stipulations neither made nor discovered by them.

These stipulations can be supplementary to the limitations of individual horizons, particularly by providing ethical directions for the whole plan of life. Attempts in this direction are e.g. the marriage customs together with their specification and enforcement by positive law.

Both mores and positive law claim authority, i.e. a validity not dependent on their satisfying conditions of ethical objectivity, e.g. those emerging from a moral law. That authority claim can never be acknowledged by ethics. It is actually its very opposite and an object of its thoroughgoing criticism. The will of 'life-planners', past or present, is not the source of moral obligations, this is only the moral

law itself. To identify a human will with the moral law is a presumption which implies an anthropological idolatry.

There is ample opportunity for ethics to detect and combat that idolatry which can be found in widespread doctrines of general ethics, and of educational and political theory.

The recognition of this situation is not a discouragement for ethics. On the contrary, it opens up vistas which could mobilize intellectual energies equal to those which are driving science on to ever new discoveries.

STUDIES IN PSYCHO-BIOLOGICAL FOUNDATIONAL RESEARCH

By E. KLETSCHOFF

To escape the dilemma of conflicting theories produced by the oft-lamented absence of unity in psychological research, some psychologists have advocated a 'theoryless' empiricism (Fr. Giese, *Elsenhans' Lehrbuch der Psychologie*, 1939, p. 61; Poppelreuther, *Psychokritische Pädagogik*). Others have proposed the radical solution of abandoning introspective methods (behaviourists). To most psychologists, however, neither solution has appeared satisfactory. Consequently, a large following was gained by experimental research based on indirect introspective observation; however, this method invariably yields results so diverse that no clear picture is possible, and thus runs counter to the scientific ideals of the unity of research and 'multum non multa'.

There has been no lack of attempts to regain the lost unity. The Gestalt psychologists have endeavoured to develop in analogy to physics, a psychological theory on an experimental basis. Representatives of holistic and personality psychology come in certain respects nearer to the humanistic points of view. Several eminent psychologists have withdrawn even more emphatically from the approach of natural science; they consider a localization of mental phenomena in the brain impossible and hold physiological terminology in psychology to be totally inadequate. In their view the mind is fundamentally inaccessible to investigation with the methods of natural science (L. Hermitte, *Le cerveau et la pensée*, 1951; P. Janet, *De l'angoisse à l'extase*).

Considering the bewildering diversity of viewpoints in psychology, it would appear that no precise answer can be given to the question whether psychology should be counted among the natural sciences or among the humanities. Out of this situation arose a zone lying between the extremes, where use was made of more or less humanistic concepts (tendencies of unknown provenance, creative forces, etc.) in addition to the methods of natural science (e.g. in the discussion of neurophysiological topics). But quite apart from this, most psychological writings contain humanistic elements in the usual nomenclatures and classifications.

This variety of approaches increases in the borderline regions between psychology and biology. The eminent and much quoted biologist Buytendijk explicitly adopted a providential teleology of the organic (*Psychologie der Tiere*), and he was surpassed by Bavink

(*Ergebnisse und Probleme der Naturwissenschaft*, 1933) in the systematic development of such hypotheses. Nor do Bergson's *élan vital* or Aristotle's concept of *entelechy* belong only to the history of research, for similar or identical concepts were treated as subjects of research not only by Driesch and Becher but also by Hoeffler (*Psychologie*, 1930) and other scientists.

Hence it can hardly be considered an exaggeration to assert that as yet there exists no psychological research which rests on uniform foundations and uses uniform methods, but only a medley of diverging theories which range over a wide area from philosophical and humanistic to physicalistic and mechanistic currents of thought according to the personal attitude of the scholar. Hence J. Kraft appears fully justified in calling it an urgent task of psychology 'to formulate relationships between physiological and introspective methods, which must also result in a mutual demarcation of such concepts as "organism" and "psyche", "behaviour" and "mental life"'. (*Das Rätsel der Geisteswissenschaft und seine Lösung*, Studium Generale, 1958, vol. III). The plea for a synthesis of psychological theories has been made by other scholars without hitherto having been heeded.

However, in various psychological writings noteworthy beginnings in this direction can be found; while having been unable to change the unsatisfactory aspects of the general situation in any decisive way, they do open up the possibility of a uniform method of investigation in the manner of natural science. Such beginnings exist in many studies in Gestalt theory as well as in Jean Piaget's genetical investigations. Continuing Ed. Claparede's work, Piaget made a systematic study of the forms manifested by mental processes in children of various ages, thus at rudimentary levels and not in an advanced stage of development as they are encountered in adults. He was able to demonstrate, or at least make it appear probable, that qualities regarded as *a priori* attributes of the mind and of the soul and allegedly not amenable to the methods of natural science result from structuration processes and may be considered the products of development from very rudimentary forms that must have crystallized in the closest contact with organic and non-organic reality.

As the various genetical viewpoints and their consequences cannot be treated exhaustively in this brief study, we will confine ourselves to using a few of the approaches of genetical investigations. This does not of course justify making Piaget responsible for the conclusions contained in the following account. Nor do the examples mentioned here form a systematic investigation of the questions touched upon;

they are intended merely to illustrate the issues concerned. However, the examples were not selected at random, but with regard for the present theme (the contradictions in the viewpoints of natural science and the humanities and the possibility of overcoming them).

The Origin of the Viewpoints of the Natural and Humanistic Sciences in Psychology

The viewpoint of natural science is characterized by the method of the object-subject division; the adherents of the humanistic viewpoints on the other hand endeavour, either consciously or unconsciously, to abrogate this division. Their strikingly divergent views on a tried method make it well-nigh impossible to avoid asking what reasons are responsible for the divergence. In the field of psychology this question can best be examined by considering a concrete example of a clear formulation of the humanistic aims within psychological research.

Such a formulation can be found in a doctor dissertation by Brinkmann (*Natur und Kunst*, 1938). Like Husserl and Dilthey, the author argues against thinking in 'states of affairs'. In his view, we thereby lose touch with the freshness, immediacy and richness of our experiences. He contends that knowledge yielded by the humanistic sciences differs fundamentally from that yielded by the natural sciences and that a connection between the two kinds of knowledge is unfeasible since understanding and explaining are divided by a qualitatively unbridgeable gap. Thus he advocates a reorientation based on naive-uncontemplated experience of the world in place of the traditional orientation based on the scientific-mechanistic world construction.

There are no objections to Brinkmann's argument in so far as he speaks as an aesthete. But he does not in fact confine himself to an aesthetic point of view; he claims for his thesis the status of general psychological rules of procedure, which means he advocates the return to a method limited exclusively to phenomenological (direct-introspective) observation. This particular method, however, has borne little fruit, for it has always resulted in an interpretation of the phenomena as qualitative, not further analysable 'finalities', because every attempt to analyse them ends in a non liquet.

Where then does the virtue of the method Brinkmann advocates lie? Evidently in its individual experience values (*Erlebniswerte*). Unfortunately, these are common only in persons still close to subjective evaluations; thus they are characteristic of the age of youth with its imaginative powers and vividness of experience. Curiosity, however, means something quite different for a child and

for a person with developed mental structures. When a child asks 'Why?' concerning a ray of light or a sound, it does not want to know about the physical occurrences taking place when electromagnetic or acoustic waves are produced, but the peculiarity and essence of the phenomena which strongly affect its world of feeling. To this kind of question, though it can be answered with tautologies and pleonasms, there is no objective answer.

This assertion is unavoidable, but it would be regrettable if it were taken as a disparagement of opposing views. The need for immediacy of experience is as legitimate as any other: Goethe himself attached greater importance to it than to strict objectivity, as his arguments against Newton prove. But the Newtonian method has for that reason not been in any way less fruitful. It should be borne in mind that the need for immediacy and vividness of experience is essentially of artistic nature, i.e. directed towards creation and perception, and that the strict scientific approach would be unfeasible without a consistent object-subject division (even though the latter is not realizable to the desired extent). It may be regrettable that man is not a completely integrated being, that he can realize his various faculties only as partial functions, and that the cultivation of scientific thinking can thus only be bought at the price of a weakening of the intensity of experience. But there is, unfortunately, no altering the fact that the development of abstract thinking and the maturing of mental structures are a *sine qua non* of scientific knowledge. Even if one admits that imagination and inspiration may have beneficial consequences for research (though this happens seldom enough), their value is wholly dependent on controls being made, subsequently at least, with an extensive elimination of subjective influences.

A special condition of psychological investigation is that subjective experience itself forms part of the subject matter of research and cannot therefore be ignored. This entails the further condition that the results of introspection must be controlled with objective methods, i.e. with all methods, including physiological ones, open to objective investigation. The imperfection of such methods, moreover, should not be allowed to discourage one.

The drawbacks of the humanistic points of view arise merely because their advocates have too little appreciation of the method of object-subject division and underestimate the importance of control. Since it is just such errors that can become a hindrance to scientific research — and they are very prevalent on the humanist side — the possible dangers should not be concealed.

As should be apparent, it is not our intention to repudiate the

value of phenomenological (introspective) studies, but to keep them within their proper bounds. Introspection holds the advantage of enabling scientific hypotheses and inductions to be controlled and verified. If, however, it is confined to one's own person, one is subjected to its analytic incompetence. Introspection never leads to the clarification of facts, nor does it proceed beyond laborious and ambiguous verbalizing, for no acuteness of observation or skill in interpretation can prevail against the defectiveness of this method. Attempts to interpret subjective experiences and commentaries on the various opinions expressed about these do not guarantee objective knowledge. In endeavouring to understand what is experienced by referring only to the self, the humanistic sciences utterly disregard certain contradictions and ambiguities, one example being that psychological phenomena arise from functions and factors of which we can have no consciousness. For these various reasons, introspective methods can have no objective scientific validity except when providing an experimental answer to positive questions.

The genetical approach sees no insuperable contradiction between the two apparently incompatible viewpoints. However, no escape from the dilemma of the contradiction between humanistic and natural sciences will be found until it is generally realized that the apparent incompatibility of views results from laws definable as typological and genetical differentiations.

The Origin of Finalistic and Causal Thinking

If the opposing views are retraced to their sources, it will be found that, although of different origins, they invariably lead back to the childhood stage of mental development. They branch out from the finalistic viewpoint into the opposite directions of teleological and causal thinking depending on the order of magnitude of the observed facts. They are directed, however, not by *a priori* necessities of thinking but by the diversity of experiences, and they consolidate only gradually into fixed schemas, schemas that remain burdened with the defects of their origin.

The habit of causal thinking already represents a breach in subjective modes of experiencing, for causality is an abstract notion and is therefore less natural to children than the finalistic view. The latter accords better with their need to 'grasp the essence', and it is more consistent with the child's way of thinking, for it results immediately from experiences of one's own activity, its purposefulness, and its visible effects. As E. Bleuler remarked, 'The notion of strict causality in modern science does not belong to natural thought; it is in every respect an achievement of research by educated men,

who abstracted it, tested it by fresh experiences, and generalized it accordingly, the outcome being that in our eyes every happening must have its cause and its effect' (*Naturgeschichte der Seele und ihres Bewusstwerdens*, 1921, p. 207).

Even schoolchildren are still not entirely familiar with the causal nexus, and they often confuse it with the final nexus. Structurally it is so closely related to the latter that the development of the one concept from the other is easily recognizable. The transition is concomitant with the repeated experience that the effect one external object has upon another is analogous to the effects of personal activity. Thus it is not surprising that the notion of causality in school philosophy is infected with the same prejudices as are evidenced by the teleological conception. Strictly speaking, therefore, it cannot do justice to the facts. For scientific purposes it must often be supplemented, either by minimal principles or by the calculus of probability. Owing to the prestige enjoyed by the classical concept of causality under the influence of philosophers, it is often overlooked that this concept represents a gross over-simplification of the facts. This does not, however, affect the validity of the conservation of energy or the conception of entropy (the circumstance that latent differences, left to themselves, decrease instead of increasing). Perhaps one may assume that the proposition of causality in its traditional form (the defects of which are not eliminated even when functional concepts are introduced in its place) will sooner or later be supplanted by a more general formulation which does justice to the immense number of conditions and to the bewildering disparity in the order of magnitude. Considering the inexactitudes of terminology, it is simply a matter of concurrence whether the equivalence conditions of the transformation of energy and the phenomena of entropy are designated as causal, functional, or by some other expression. The concrete facts, which contain a complicated determinacy, cannot at present be adequately rendered by any definition. The uncertainties that have emerged in recent physics appear to have played some part in causing the chaos from which man is increasingly suffering, for 'men commonly suppose, when they hear words, that these must have some meaning'. (Goethe, *Faust I*.)

In assessing the situation outlined here it should be further borne in mind that the genetic point of view is comparatively recent, while the opponents of natural science have a long humanistic tradition and count many great philosophers in their ranks. Kant's authority in particular has such high standing among psychologists, biologists and physiologists that he is still often quoted, and the results of natural science are often coupled with Kant's transcendental

idealism. We might recall that Kant regarded not only the causal, but also the teleological, viewpoint as necessary to thought. Since it has been established that this scheme of thought does not accord with the facts, it can no longer have application in the realm of empirical facts; and yet one finds learned treatises which, while repudiating the teleology of natural occurrences, appeal on the other hand to Kant's authority in order to be able to continue using teleological notions and modes of explanation so as to be able to shift at will from the methods of natural science to those of the humanities.

According to the genetical point of view, the *a priori* necessities of thought, prompted by schematizations, systemizations, and habits, have gradually become conscious as the structuration of thinking, which developed in childhood with experiences and the constant manipulation of concrete things. Consequently, the conditions which prompted the apriorism lie in the growth of sensibilo-sensory and sensori-motor synergisms and the mental structural changes coupled with them.

This genetical view does not even today preclude considering Kant's philosophy entirely realistic. A method of thought not founded everywhere on empirical facts leads just as surely into the blind alley of metaphysics as does the search for the absolute, about the existence of which nothing can be said since science is concerned exclusively with functional relations. Psychology would go disastrously astray if it endeavoured to find in the phenomena of consciousness foundations on which to set up absolute criteria. It would, however, render science a great service if psychology interpreted relevantly the results of special branches of research and thus contributed towards lifting the barriers which diverging viewpoints and linguistic habits have set up between the individual disciplines.

The Limits of a Psychology of 'Understanding'

Doubts concerning the arguments of understanding psychology, or *Verstehenspsychologie*, already arise in connection with typological differences. Differences of temperament, of spheres of feeling, and of mental structures, as exist for instance between schizothymic-introverted and cyclothymic-extroverted types, are so marked that the possibility of mutual empathy and reciprocal understanding is limited — unless an introvert resorts to the expedient of temporarily placing himself in the psychical situation of an extrovert by the use of suitable drugs, a hardly practicable method.

In psychopathology such limitations are much more numerous, e.g. if it were a case of projecting oneself into the delusions of a

paranoiac. The faculty of empathy is also an individual and by no means common quality; the more general rule is rather that one involuntarily confronts one's fellow man not only as a partner who appreciates and projects himself into the feelings of the other but also as one who gives judgments. Such an attitude is, for the genetical reasons already mentioned, almost impossible to suppress in mentally developed people, for it corresponds to thinking in logical categories, and this gradually becomes habitual, while empathy remains more or less at the stage where thought is coloured by feeling and emotion.

On the other hand there are very plausible grounds for favouring the demand made by some psychiatrists for an empathic and understanding attitude. H. Baruk was moved in this direction by the observation that patients react sensitively to the human behaviour of the persons, particularly the physician coming into contact with them. He allowed himself to be guided, therefore, by humanitarian considerations and other obligations of the physician. For the rest he utilized, as did Jaspers (so far as one can gather from their writings), for the purpose of diagnosis and therapy an objective, scientific, and explanatory method.

(Translated from the German)

SOME PROBLEMS OF THE RELATION BETWEEN BERKELEY'S *NEW THEORY OF VISION* AND HIS *PRINCIPLES*

BY W. B. CARTER

IN *An Essay Towards a New Theory of Vision* Berkeley assumes that the objects of touch exist outside the mind, but that the objects of sight do not. In the *Principles of Human Knowledge*, however, he maintains that like the objects of sight, the objects of touch also exist within the mind. Berkeley notes this clash but maintains that it was not his purpose in an essay on vision to refute the view that the objects of touch exist external to the mind. However, he says that it must not be supposed that 'that vulgar error was necessary for establishing the notion therein laid down'.¹ Thus he maintains that what he says in the *Essay* is consistent with the immaterialism of the *Principles*.

But this is not as simple as it might appear at first sight. It is not too clear what Berkeley's immaterialism is, so it is not easy to decide what the relation is between the positions of the *Essay* and *Principles*. At least three positions can be distinguished in the *Principles* and *Dialogues* and they do not seem to be compatible with each other. Nor can any one of them be said to be Berkeley's real view since all three are found intermingled together through these works.² Any distinction which is made between them, therefore, can be only for purposes of analysis. Berkeley himself does not distinguish them.

¹ *The Principles of Human Knowledge*. All references are to A. A. Luce and T. E. Jessop (ed.), *The Works of George Berkeley, Bishop of Cloyne* (Edinburgh: Nelson, 1948). All future references will be to this edition and the following abbreviations will be used:

N.T.V.	<i>New Theory of Vision</i>
P.	<i>Principles of Human Knowledge</i>
P.C.	<i>Philosophical Commentaries</i>
N.T.V.V.	<i>New Theory of Vision Vindicated</i>
D1., D2., D3.	<i>Three Dialogues between Hylas and Philonous</i>
A.	<i>Alciphron, or the Minute Philosopher</i>

In Section 44 of the *Principles*, when he speaks of objects of touch existing 'without' the mind and objects of vision 'within' the mind in relation to his views in the *Essay*, Berkeley may be using these terms with their usual meaning, i.e. spatially. He would only be doing this for purposes of exegesis saying in effect that he assumed absolute space, and objects of touch existing in it, in the *Essay* so that he could show that men do not see distance. This, of course, is not his usual meaning when he uses these terms since he denies Newton's Absolute Space. In the *Principles* and in his later works Berkeley must be taken to mean by 'without' 'having no relation to' and by 'within' 'in relation to' or 'dependent upon' the mind. I would like to thank Prof. H. M. Estall for his comments while I was writing this paper.

² Various aspects of these have been discussed in other connections by Willis Doney, 'Two Questions About Berkeley', *Philosophical Review*, vol. LXI (1952), pp. 382-91; Denis Grey, 'The Solipsism of Bishop Berkeley', *Philosophical Quarterly*, vol. II (1952), pp. 338-49; Denis Grey, 'Berkeley on Other Selves: A Study in Fugue', *Philosophical Quarterly*, vol. IV (1954), pp. 28-44; Harry M. Bracken, 'Berkeley's Realisms', *Philosophical Quarterly*, vol. VIII (1958), pp. 41-53. The names for the three positions are taken from Grey.

It will therefore be necessary to discuss the *Essay* in relation to each of these in turn.

I

The first interpretation may be called the 'strict position' and is stated by Berkeley in sections 3-6 of the *Principles* where he says that the existence of sensible things is in a mind perceiving them. This he says is 'what is meant by the term *exist* when applied to sensible things ... For as to what is said of the absolute existence of unthinking things without any relation to their being perceived, that seems perfectly unintelligible. Their "*esse is percipi*"'.³ This he repeats in Section 5 when he says that 'it is impossible for me to conceive in my thoughts any sensible thing or object distinct from the sensation or perception of it'. On this view things only exist while they are being perceived and it is 'unintelligible' to speak of them existing under any other circumstances.

But in order to be consistent this position must be held to rigorously and this creates many problems when it is related to what Berkeley says in the *Essay*. Berkeley wants to argue from the order and grouping of his sensations to a God which causes them and 'speaks' to man with a divine language by means of them. But this he cannot do. Berkeley can note the empirical fact that our sensations come in certain groups and in certain orders, but this is all he is entitled to do. He cannot place any interpretation upon those sensations. But to speak of a 'language' is to do this. Thus not only is Berkeley not entitled to speak of a divine language, but he cannot speak of a language at all if he wishes to imply by this that there is a mind or minds behind some of his sensations producing them in him. On the basis of the strict position he is not even entitled to write or speak himself if his writing and speech are intended for other minds. Thus there is no reconciliation between the strict Berkeley and the Berkeley of the *Essay*. Berkeley did not remain in the strict position. The claims of common sense and the desire to incorporate God into his philosophy were too great for him, and it is this which led him to put forward the following two views on the nature of the world of things, though they are not distinguished by Berkeley.

II

The position closest to the strict position is that in which nature is conceived of as a divine language, and so can be called the 'linguistic view'. On this view there are only the finite minds and God but no world independent of both God and man. Berkeley notes that our

³ P. 3.

ideas change in various ways not depending on our will and concludes something must cause these changes. But he holds that since our ideas are all inert and passive they cannot cause changes in each other. Thus the cause can only be a substance, not a corporeal one, but rather 'an incorporeal active substance or spirit'.⁴ It is also the case that 'the set rules or established methods, wherein the mind we depend on excites in us the ideas of sense are called the *Laws of Nature*'.⁵ Berkeley thus feels that the 'admirable connection' of these laws testifies to 'the wisdom and benevolence of its Author'⁶ and that the 'ideas imprinted on the senses by the Author of Nature are called *real things*'.⁷ As in the strict view, thus, the world of things still consists of ideas, but now Berkeley goes further and says these are caused by God. However this means that strictly speaking God and His powers constitute the world and men's ideas represent them. As Berkeley says, 'The objects of sense, being things immediately perceived, are otherwise called ideas. The cause of these ideas, or the power producing them, is not the object of sense, not being itself perceived, but only inferred by reason from its effects, to wit, those objects or ideas which are perceived by sense. From our ideas of sense the inference of reason is good to a Power, Cause, Agent. But we may not therefore infer that our ideas are like unto this Power, Cause, or Active Being'.⁸ But here Berkeley is subject to all the Problems of the representative theory of perception, since, if 'an idea can be only like another idea'⁹ it is impossible to say there is any power producing our ideas or what this power's nature is, if there is one. Also Berkeley is reduced to as much scepticism as he accuses the materialists of being reduced to, since neither he nor they can know the true essence of things by their ideas. It is necessary, thus, to distinguish in this position sensible things as being made up of the ideas produced in men by God from the powers in God to produce these ideas which really constitute the essence of things.

It is by means of this distinction between ideas and the powers in God to produce them that Berkeley can allow that objects continue to exist when not observed by individuals since 'Bodies, etc., do exist whether we think of 'em or no, they being taken in a twofold sense. Collections of thoughts and collections of powers to cause those thoughts. These later exist, tho perhaps a parte dei it may be one simple power'.¹⁰ Objects do not continue to exist as collections of

⁴ P. 26; 29.

⁵ P. 30; also 36, 57.

⁶ P. 30.

⁷ P. 33; also 44, 65, 90, 147, 148, 149.

⁸ N.T.V.V. 11.

⁹ N.T.V.V. 12.

¹⁰ P.C. 282.

ideas that are possibilities of perception, but rather as powers, or power, in God to cause ideas. Therefore, when God is conceived of as the Author of the Language of Nature, Berkeley is not a phenomenalist as phenomenalism has been thought of traditionally. This position is the one which is most closely related to Berkeley's views in the *Essay* and in *New Theory of Vision Vindicated*, since he refers to it in both these works.¹¹ Its close relation to his work on vision can also be seen in the Fourth Dialogue of the *Alciphron*¹² where he first sketches his position in the *Essay* and then uses it to show that God is the Author of Nature. It is therefore necessary to see if the linguistic view is consistent with his position in the *Essay*.

Berkeley does not say how God acts on finite minds. In the *Alciphron* he says that the variety of our ideas 'doth set forth and testify the immediate operation of a spirit or thinking being'¹³ and in the *Principles* he speaks of God as 'a spirit who is intimately present to our minds, producing in them all that variety of ideas or sensations....'¹⁴ This would appear to be the most consistent view, since if there are only finite minds and an infinite one, God would act by means of some immediate operation upon the finite ones. However Berkeley also speaks of ideas as impressions of men's senses.¹⁵ What meaning can be given to this? Berkeley says that when he speaks 'of objects as existing in the mind or imprinted on the senses; I would not be understood in the gross literal sense, as when bodies are said to exist in a place, or a seal to make any impression on wax. My meaning is only that the mind comprehends or perceives them; or that it is affected from without, or by some being distinct from itself'.¹⁶ This would be in keeping with God acting immediately on the minds of men. But what then becomes of men's senses? Are the senses only a delusion created by God in His action on men's minds? If God does not imprint ideas on the senses is it proper to speak of ideas of vision, touch, taste, etc., since these are all ideas of the senses? Berkeley bases his whole *Essay* on a correlation of the ideas of the various senses and upon his doctrine that the ideas of each sense are peculiar to it so that we never see what we hear, etc. What becomes of this doctrine if the assumption that ideas are imprinted on the senses is no longer valid? Thus by trying to avoid the 'gross literal' sense of 'imprinting' Berkeley creates many problems with respect to the senses and their ideas.

¹¹ N.T.V. 152; N.T.V.V. 11, 12, 38, 43.

¹² A. IV, 11-15.

¹³ A. IV, 14.

¹⁴ P. 149.

¹⁵ See P. 5, 29, 33, 149.

¹⁶ D3. vol. II, p. 250.

In the *Essay* Berkeley had supposed that objects of touch exist without us while those of vision do not. He says that we 'regard the objects that environ us in proportion as they are adapted to benefit or injure our own bodies, and thereby produce in our minds the sensations of pleasure and pain. Now bodies operating on our organs, by an immediate application, and the hurt or advantage arising there-from, depending altogether on the tangible and not at all on the visible, qualities of any object ... the visive sense seems to have been bestowed on animals ... that by the perception of visible ideas ... they may be able to foresee ... the damage or benefit which is like to ensue, upon the application of their own bodies to this or that body which is at a distance'.¹⁷ In the *Principles* he rejects this and makes the ideas of touch have the same status as those of vision. Therefore he holds that the more correct formulation of his position is that 'the ideas of sight, when we apprehend by them distance and things placed at a distance, do not suggest or mark out to us things actually existing at a distance, but only admonish us what ideas of touch will be imprinted in our minds at such and such distances of time, and in consequence of such and such actions'. Berkeley believes this is in keeping with God as the Author of the Language of Nature since the ideas of sight are 'the language whereby the governing spirit, on whom we depend, informs us what tangible ideas he is about to imprint, in case we excite this or that motion in our own bodies'.¹⁸ But this is hardly satisfactory. If there are only finite minds and God why is it necessary for God to imprint sensations of pleasure and pain in the finite minds? These sensations are only necessary if we assume objects existing independently of men which can harm or benefit them because they have bodies which these objects can act upon. Yet if there are only minds then no bodily harm can be done, since there are no physical objects or bodies. Men as finite minds are in direct relation with God. Why does he have to speak to us in the language of pain and pleasure? To warn us against Himself? If this is the answer it is difficult to understand why certain relations to God should be encouraged and others discouraged. The systems of pleasures and pains are conceived of as necessary by Berkeley for survival, but this is *bodily* survival. If there is no body there is no problem of survival and no need for God to 'speak' to us in any language at all.

But this is not all. Berkeley does speak of men 'exciting this or that motion in our own bodies' and that it is because of this that God must imprint tangible ideas on our senses. What can this mean? Strictly speaking it has no meaning if men have no bodies, but if it is

¹⁷ N.T.V. 59.¹⁸ P. 44.

allowed that men do have bodies this means that these bodies are only collections of ideas.¹⁹ The implications of this will have to be examined later when the third possible interpretation of Berkeley's position is presented, but for the moment it can be assumed that collections of ideas make up men's bodies. What then can 'motion of our bodies' mean? He says that 'figure, motion and other qualities ... are in truth no more than mere ideas'²⁰ and that 'if extension be once acknowledged to have no existence without the mind, the same must necessarily be granted of motion ...'²¹ 'Motion of our bodies' must therefore mean 'change in the collection of ideas making up our bodies'. When we first have our arm by our side and then change it so it is stretched out this means that the relation between the ideas making up our arm and those making up our body have changed. But why should a change in relation of ideas in some cases cause pain and in others cause pleasure? There is no contact with any body external to the mind since there is no such body, nor can there be said to be any contact with God. There is only a change of ideas in our mind as a result of an act of our will, so why should God imprint ideas on our senses or on our mind because of changes in our ideas? What Berkeley says here assumes the position he repudiates.²² That is, it assumes there is distance external to the mind which is not just the relation between ideas, that men have a real physical body and that when they put their hand out they put it into this distance, and that it comes in contact with some external object which can be painful or pleasurable. Berkeley gives an account of motion as being relative, and so dealing with a change of ideas, which can apply to objects within our field of vision, or in fields of vision and touch. One group of ideas can be said to be in motion when they change their position relative to another set. But this is not enough. He is implying that we move as well when he says that we move our bodies and that as a result of this God imprints certain ideas on us. Yet what does it mean for an immaterial being to move? It is usually held that bodies move and minds do not. However, leaving this problem aside it is still the case that any motion in our bodies is only a change in ideas and there is no reason given why some changes in ideas should cause God to imprint tangible ideas on our senses, or minds, while others do not. The only reason could be that we approach God and this involves more than just a change of ideas.

But how can we approach or go away from God? For Berkeley it is God 'in whom we live, and move, and have our being'²³ so that

¹⁹ D3. vol. II, p. 241.

²¹ D1. vol. II, p. 191.

²⁰ P. 50; also 25.

²² See P. 116.

²³ P. 149.

He is everywhere affecting us in various ways with different ideas depending on how we change our ideas and on the Laws of Nature which are manifestations of His will. We do not approach God, therefore, since we are in Him, nor can we approach objects since they are only the result of his acts on us. If Berkeley were to be consistent he would have to omit all references to 'motion of bodies' as approaching other bodies. But this he cannot do and still retain the essential features of the *Essay*. Therefore, even in restating his views of the *Essay* in terms of his immaterialism he still has to assume the position of the *Essay* which is hard to reconcile with that immaterialism.

This difficulty is also seen in Berkeley's explanation of why the moon seems larger at the horizon than when it is in the meridian. This is given²⁴ in terms of rays of light, the amount of atmosphere between the moon and the earth, etc. In the *Essay* Berkeley is as materialistic in his explanation of this phenomenon as any of his opponents. This is all very well when speaking in conventional terms where there is an independent world of objects, but what is one to make of this explanation in terms of immaterialism where there is only God and a finite mind? Berkeley himself criticizes all such explanations as that which he gave in the *Essay*, saying 'But how matter should operate on a spirit, or produce any idea in it, is what no philosopher will pretend to explain ... Besides, they who attempt to account for things do it not by corporeal substance, but by figure, motion and other qualities, which are in truth no more than mere ideas, and therefore cannot be the cause of anything ...'²⁵ There are no light waves, no atmosphere between men and the moon, distance is not something external to the mind, all that is perceived is the result of God's action on our minds. Therefore the various appearances of the moon must be the result of His action, which would seem to imply that God is deceiving us in producing the various ideas of the sizes of the moon in our minds.

Thus the whole problem of error in Berkeley's philosophy is raised. Bracken²⁶ has examined this problem to show the difficulties that arise when Berkeley is interpreted as a realist and when his ideas are taken to be sense data. Problems also occur when God is considered as producing ideas in the minds of men. Berkeley raises the problem in the *Third Dialogue Between Hylas and Philonous* where Hylas asks 'how can a man be mistaken in thinking ... a square tower, seen at a distance, round, or an oar, with one end in the water, crooked?' Philonous replies 'He is not mistaken with regard to ideas he actually perceives; but in the inferences he makes from his present

²⁴ N.T.V. 67-78.²⁵ P. 50.²⁶ op. cit.

perceptions. Thus in the case of the oar, what he immediately perceives by sight is certainly crooked; and so far he is in the right. But if he then conclude, that upon taking the oar out of the water he shall perceive the same crookedness; or that it would affect his touch, as crooked things are wont to do: in that he is mistaken. In like manner, if he shall conclude from what he perceives in one station, that in case he advances toward the ... tower he should still be affected with like ideas, he is mistaken. But his mistake lies not in what he perceives immediately and at present ... but in the wrong judgment he makes concerning the ideas he apprehends to be connected with those immediately perceived: or concerning the ideas that, from what he perceives at present, he imagines would be perceived in other circumstances.²⁷ But, as Bracken points out, this means we can never be sure that what we see at any moment is a square tower or a broken oar. Now this may be all very well in a world of physical objects, but it has unpleasant consequences when the Author of the Language of Nature is God, since it means we are never at any given moment sure whether or not God is deceiving us. Our only guarantee of the validity of any ideas is their vivacity, constancy and coherence²⁸ with other ideas God produces in us. Sometimes God may choose to present us with ideas which are correct (i.e. consistent, etc., with other ideas He will produce in us) while at other times He may not. There is nothing in any idea or set of ideas which can tell us which He is doing. Nor does Berkeley's distinction between perception and judgment offer a way out of this difficulty. Experience is the basis of judgment in Berkeley. Because we have experienced certain ideas, say an idea of sight and one of touch, to go together, whenever we experience the former we come to expect the latter. Thus Berkeley says that the idea of sight is a sign of the idea of touch, which it signifies; so he can speak of a Language of Nature with its Author God. All our judgments are based on the Language with which God speaks to us. The result is that we err because we have learnt the Language of Nature too well; we have come to expect that God will always 'speak' in the same way to us. Then without any warning God presents us with an idea that has always signified a certain other idea, but now He has made it signify some different idea, or perhaps no idea at all. He has changed the rules of the Language without informing us. Therefore we do not err, God deceives us, because we have placed too much trust in Him. The only way we can save ourselves is to consider that God is a deceiver and wait to see what ideas He will present us with in the future.

²⁷ D3. vol. II, p. 238; also N.T.V.V. 42.

²⁸ P. 30, 33.

The result of this linguistic interpretation of Berkeley's philosophy is that his immaterialism leads to as much scepticism as that of the materialists and that it is not consistent with his position in the *Essay*. It is sceptical for two reasons. Men do not know the powers in God's mind which produce their various ideas so that Berkeley is reduced to as much scepticism as Locke was with respect to the real essence of things. A curtain of ideas stands between men and God. A second reason for scepticism is that no reliance can be placed on God in causing ideas in men. He does not speak a consistent language and so he misleads them. Nor does his immaterialism form a unity with the *Essay*, since Berkeley cannot completely restate his findings of the *Essay* in terms of that immaterialism, that is, he cannot satisfactorily explain why God uses the Language he does to speak to men.

III

The third possible interpretation is contained in Berkeley's reply to the objection that if *esse* is *percipi* of all things it must follow that 'things are every moment annihilated and created anew. The objects of sense exist only when they are perceived ...'²⁹ Berkeley says that 'we may not hence conclude they have no existence except only while they are perceived by us, since there may be some other spirit that perceives them, though we do not. Wherever bodies are said to have no existence without the mind I would not be understood to mean this or that particular mind, but all minds whatsoever',³⁰ including 'even the eternal mind of the Creator'.³¹ He also states this in the *Dialogues* saying that '*sensible things do really exist: and if they really exist, they are necessarily perceived by an infinite mind: therefore there is an infinite mind or God*'.³² Thus things are collections of ideas, for example 'I see this *cherry*, I feel it, I taste it: ... it is therefore *real*. Take away the sensations of softness, moisture, redness, tartness, and you take away the *cherry*. Since it is not a being distinct from sensations, a *cherry*, I say, is nothing but a congeries of sensible impressions or ideas perceived by the various senses: which ideas are united into one thing ... by the mind; because they are observed to attend each other'.³³ We are clothed in, eat, live in, a world of ideas which can also be called things, and have all the qualities that we are conscious of when they are present to our senses. Thus Berkeley takes nothing away from the world of the ordinary man and insists

²⁹ P. 45.

³⁰ P. 48; also 90.

³¹ P. 91.

³² D2. vol. II, p. 212; also D3. vol. II, p. 230-1.

³³ D2. vol. II, p. 249.

that he can put implicit faith in his senses.³⁴ He also distinguishes 'a twofold state of things, the one ectypal or natural, the other archetypal and eternal ... The former was created in time; the latter existed from everlasting in the mind of God'.³⁵ Berkeley thus in this position is a complete realist who distinguishes finite minds, a created world of things which are composed of ideas perceived by God, and so sustained in existence by that perception, and God whose ideas are the eternal archetypes of creation. This view may be called the 'limerick' interpretation of Berkeley's philosophy.

But what is the nature of a thing or object for Berkeley? He talks as if there were some one object having certain definite qualities, or ideas, making it up. But this is not always his position. In the *Essay* he holds, for example, that 'the judgments we make of the magnitude of things placed at a distance from the various greatness of the immediate objects of sight do not arise from any essential or necessary but only a customary tie, which has been observed between them'.³⁶ Thus any idea of sight might quite possibly have suggested completely different ideas of touch than they do now, since they are 'in their own nature equally fitted to bring into our minds the idea of small or great or no size at all ...'.³⁷ It is in keeping with this that Berkeley says that a blind man who suddenly regained his sight would not be able to tell which visual object was a sphere and which a cube. It is thus 'a mistake to think the same thing affects both sight and touch'.³⁸ This view is repeated in the *Dialogues* where Hylas asks why men disagree over the nature of things if their true nature comes from the senses. 'Why is not the same figure, and other sensible qualities, perceived all manner of ways? and why should we use a microscope, the better to discover the true nature of a body, if it were discoverable to the naked eye?' Philonous replies that 'Strictly speaking ... we do not see the same object we feel; neither is the same object perceived by the microscope, which was by the naked eye. But in case every variation was thought sufficient to constitute a new kind or individual, the endless number or confusion of names would render language impracticable. Therefore to avoid this ... men combine together several ideas, apprehended by divers senses, or by the same sense at different times, or in different circumstances, but observed, however, to have some connection in Nature, either with respect to co-existence or succession; all which they refer to one name and consider as one thing. Hence it follows that when I examine by my other senses a thing I have seen, it is not in order to understand better the same object which I have perceived by sight,

³⁴ P. 38-40.³⁵ D3. vol. II; P. 254.³⁶ N.T.V. 62.³⁷ N.T.V. 64.³⁸ N.T.V. 135-6

the object of one sense not being perceived by the other senses. And when I look through a microscope, it is not that I may perceive more clearly what I perceived already with my bare eyes, the object perceived by the glass being quite different from the former. But in both cases my aim is only to know what ideas are connected together; and the more a man knows of the connection of ideas, the more he is said to know of the nature of things'.³⁹

This position has a number of difficulties. Berkeley speaks as if all the ideas which men have of objects formed a continuous series. But this is not so. There are various types of illusions. Berkeley himself mentions the straight stick appearing bent in water and the square tower appearing round in the distance. Further, what of mirages and other such ideas? Berkeley's distinction between perception and judgment is no help here, since all these illusory ideas are the basis upon which the false judgments are made. All ideas, except ones produced by the person in his imagination, have equal claim to exist and it must be granted that God perceives them and confers existence on them. The method Berkeley employs to establish his immaterialism also shows that this must be the case. In the *First Dialogue* Berkeley uses the sensations of heat and pain to show ideas cannot exist in a material substance but that a 'very violent and painful heat cannot exist without the mind'.⁴⁰ They are 'only sensations existing in our minds'.⁴¹ Berkeley then proceeds to show that the same thing applies to all other sensible qualities. In this way he establishes his immaterialism and his realism which is that for him 'snow is white and fire is hot'.⁴² But if this is so fire must be painful as well. In fact all the qualities of all the senses must exist as perceived by God. This Berkeley recognizes in his description of the cherry when he says that if you take away 'the sensations of softness, moisture, redness, tartness ... you take away the cherry'.⁴³ So also if you take away the pain you take away the fire, or take away the ring you take away the bell, or take away the tickling you take away the feather. Thus if Berkeley's system is to be interpreted in a consistent way it must be held not only that all the sensations of touch, sight, hearing, taste and smell have an existence as perceived by God, but that all the errors of these senses must also have such an existence. In this way Berkeley's realistic immaterialism leads to a universe that is almost animate, since it contains all those sensations which are usually only attributed to living beings.

If all these various ideas exist perceived by God, what is their relation to each other? Berkeley holds that there is no necessary

³⁹ D3. vol. II, p. 245.

⁴¹ D1. vol. II, p. 179.

⁴⁰ D1. vol. II, p. 177.

⁴² D3. vol. II, p. 230.

⁴³ D3. vol. II, p. 249.

connection between any visual magnitude and the tangible one with which it is associated. There is not one thing which affects men's senses in various ways, since we never see the same object we feel. Therefore it is men who construct objects through association of ideas for their own convenience in living. Berkeley's metaphysics therefore must be regarded as a radical pluralism with no essential or necessary relation between the various ideas of sight, touch, hearing, etc. But taken literally this position would mean that men would live in a world of chaos where any idea could be succeeded by any other idea and no association or combination of ideas would be possible. One could not speak, as Berkeley does in the *Essay*, of vision enabling men to foresee certain tangible ideas that can either harm or benefit their bodies. If there was not some order amongst our ideas then the *Essay* could not have been written. Thus, while Berkeley at one time insists on this lack of connection between ideas he also has to hold that there is a connection amongst them. In the *Essay* having insisted on the arbitrary relation between ideas of vision and touch and comparing this to the arbitrary relation of words and the ideas they signify, he notes that 'the latter is variable and uncertain, depending on the arbitrary appointment of men, the former is fixed and immutable the same in all times and places. A visible square, for instance, suggests to the mind the same tangible figure in Europe it doth in America'.⁴⁴ This implies more regularity in nature than Berkeley would seem to allow when he insists there is nothing in common between the visible and the tangible square. This point is raised in the *Essay* where Berkeley, after having stated that visible figure and extension are so entirely different from the tangible ones that a blind man who gained his sight could not recognize by sight the difference between a square and a cube, which he knew by touch⁴⁵, has to face the problem that 'surely a tangible square is liker to a visible square than to a visible circle'.⁴⁶ Berkeley replies that 'it must be acknowledged the visible square is fitter than the visible circle to represent the tangible square, but then it is not because it is liker, or more of a species with it, but because the visible square contains in it several distinct corresponding parts of a tangible square, whereas the visible circle doth not'.⁴⁷ He does not feel this makes the visible and tangible figures alike, since he compares them to written words (the visible idea) standing for sounds (tangible ideas). Written words are arbitrary and so long as they represent the various parts of the sound it does not matter what written words one uses. So it is with the relation between the visible and tangible square, the visible square has enough parts in the

⁴⁴ N.T.V. 152.⁴⁵ N.T.V. 135.⁴⁶ N.T.V. 141.⁴⁷ N.T.V. 142.

right relation to stand for the tangible square, but there is no necessity here at all. But this will not do. The very fact of the arbitrary nature of the written word and that through time spelling changes is enough to show Berkeley is mistaken. The visible idea conjoined with the tangible idea of a square or circle has not changed because there is a closer connection between them than between the written word and its sound. The very use of the word 'fitter' by Berkeley when he says that the visible square is 'fitter than the visible circle' also shows this close connection. It is 'fitter' because it is 'liker' to the tangible square, there is nothing in the visible circle corresponding to the sharp corners, etc., of the tangible square so it cannot represent the tangible square. But there is nothing in the written word 'through' which is like the sound it stands for and yet it does stand for it, though, as Berkeley states, another word could have done just as well (and in fact this does happen in such cases as, for example, 'pore' and 'pour'). It is just this arbitrariness Berkeley cites as an argument for his view which is really an argument against it. No word is 'fitter' than any other to stand for a given sound (so long as it obeys the rules of pronunciation of language), but as Berkeley notes some visible ideas are fitter than others to stand for tangible ones and it is this 'fitter' which leads us to suppose there is something common to the two objects of sight and touch.

This view of Berkeley's philosophy also leads to scepticism. He holds that we never see and feel the same object so that to avoid an endless confusion of names men combine various ideas together having a connection in nature and consider this as one thing. One sense cannot tell us anything more about what is perceived by another, nor can a closer examination by the same sense, because in both cases different objects are being perceived. Berkeley holds that there is no 'one, single, unchanged, unperceivable, real nature, marked by each name',⁴⁸ but does believe men can speak of several people seeing the same thing if they are 'all endued with the same faculties and consequently affected in like sort by their senses'.⁴⁹ It is in this sense that one 'may ... suppose an external archetype ... *external* ... to your own mind; though indeed it must be supposed to exist in that mind, which comprehends all things; but then this serves all the ends of identity, as well as if it existed out of a mind'.⁵⁰ But if one sense never can tell a person more about the object it

⁴⁸ D3. vol. II, p. 245.

⁵⁰ D3. vol. II, p. 248.

This quotation contains a problem. Berkeley has said that the only single object men can speak of is that each is affected in the same way. There is no single object marked by each name. But what external archetype can then be supposed to exist in the mind that comprehends all things? Berkeley appears to have slipped back into assuming there is a single object which can so exist.

⁴⁹ D3. vol. II, p. 247.

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perceived previously is this not scepticism? Is it also not a form of scepticism if one sense can never tell one anything about the object of another sense? One can never really have knowledge, since men do think that in these cases they are examining the same object more closely and so gaining knowledge, but on Berkeley's principles this is impossible, because one is always investigating a new object. In general it can be said that the fact that Berkeley can say that the works of nature 'discover so much harmony and contrivance in their make'⁵¹ and that 'ideas are not any how and at random produced, there being a certain order and connection between them'⁵² shows that there is more of a relation between ideas of sight and touch than he allows in the *Essay*. It is this very order which he relies on in the *Essay*, since he is talking about vision in general and the role it plays in men's lives. If there was not this order it could not play this role and Berkeley could not have written the *Essay*.

However this is not the only view Berkeley has about the nature of objects. As was seen when the limerick position was first outlined he also holds that sensible things are only collections of ideas. Thus he says that 'a certain colour, taste, smell, figure and consistence having been observed to go together, are accounted one distinct thing, signified by the name apple. Other collections of ideas constitute a stone, a tree, a book, and the like'.⁵³ It is these objects of sense which continue to exist because perceived by God. Thus, because of his description one would expect that there is one entity or object having a definite fixed nature that is known by sense and continues to exist in God's mind. These objects as collections of ideas would also be those which God made when He created the world. Thus the first things God created would be individual identical things. But it has just been seen that when Berkeley comes to explain how our ideas are formed he holds that men combine ideas together as they are experienced to be connected in nature to form one thing. When men have similar ideas then they can say they perceive the same thing, but if they do not perceive similar ideas then they perceive different things. This is the only way we can speak of the same thing. There is no identical thing seen by all. But what object persists? Just the objects which God originally created? No two men see identical ideas, no two men see an identical object. There are only individual objects seen by individual men and each object therefore has equal claim to persist in the mind of God in addition to His original creations. There thus are as many additional objects persisting in the mind of God as there are human perceptions of these things. Further,

⁵¹ P. 63.⁵² P. 64.⁵³ P1; also P. 23, 33, 35, 38; D1. vol. II, p. 195; D2. vol. II, p. 212, etc.

since every time the same person perceives an object again the identically same object is not seen, but only a similar one, these new similar objects must also continue to exist as well as the one he saw the first time.

Berkeley's difficulty arises out of his doctrine that 'to be is to be perceived' and from his view that men do not see the same thing as they feel, so that there is no necessary connection between the ideas of these senses. Locke, or any other 'materialist', can maintain that there is only one independent object, which each man interprets according to his experience, because he distinguishes between the thing and man's perception of it. Berkeley, however, having said that an object is only the collection of ideas each person is aware of, is logically committed to saying that there is no independent object. An object is only what each person perceives. When, therefore, he wants to say things persist in the mind of God he has logically to say that each person's object continues in existence in the mind of God. Locke could say that each person's individual perception of the object does not continue when, for example, the person turns his head away, but that the object itself continues, because of his distinction between the object and what each person knows of it. Berkeley, having no independent object, but still wanting to retain the interpretative element, is logically committed to saying that there are as many objects as people; so that there are as many objects in the mind of God as there are people who interpret any groups of ideas in addition to the things He made when He created the world. Berkeley, of course, does not say this. He talks as if there was a private object for each person which then becomes a public object perceived by God and as if this was one and the same object. But it is not; any object which continues must be the private object of each person. On any other interpretation Berkeley must be regarded as using the word 'object' as if 'private' and 'public object' were the same, which because each person's ideas are private to themselves simply cannot be. Therefore if Berkeley's philosophy is approached from the side of the finite mind it must be acknowledged that there are both as many objects existing in the mind of God as there are people and as many objects as there are times people perceive them. Each time God produces sensations in people He would be creating a completely new world.

But what is the nature of God's perception of ideas? That this perception is not by sense is made explicit when Hylas says that one of the results of Philonous' views is that ideas 'of pain and uneasiness are in God; or in other words, God suffers pain'. Philonous replies 'That God knows or understands all things, and that He knows

among other things what pain is, even every sort of painful sensation, and what it is for His creatures to suffer pain, I make no question. But that God, though He knows and sometimes causes painful sensations in us, can Himself suffer pain, I positively deny. We who are limited and dependent spirits, are liable to impressions of sense, the effects of an external agent, which being produced against our wills, are sometimes painful, and uneasy. But God, whom no external being can affect, who perceives nothing by sense as we do, whose will is absolute and independent, causing all things, and liable to be thwarted or resisted by nothing; it is evident, such a being as this can suffer nothing, nor be affected with any painful sensation, or any sensation at all ... God knows or hath ideas; but His ideas are not convey'd to us by sense, as ours are'.⁵⁴ God does not sense, but knows pain. But this must apply to all other qualities as well. Sensations of colour, taste, etc., are, like those of pain, produced against our will. But, while God is said to know pain, he cannot know pain, or anything else, as produced against His will. It is this which makes the important difference between the ideas men perceive and those God knows, and it is difficult to see how Berkeley can maintain that men's ideas persist in the mind of God. They are not the same ideas. But if objects are only collections of ideas this would mean that these objects change their nature when no longer perceived by man but are in the mind of God. The opposite is also true. The ideas in the mind of God must be different from those He produces in the minds of men. However, Berkeley does say that God does know everything and has ideas even though they are not conveyed to Him by sense. It is this contention which he probably regards as saving the existence of ideas in the mind of God when not being perceived by man. However, in trying to avoid saying that God perceives and so suffers pain Berkeley is very near to destroying his own philosophy.⁵⁵

The ideas which occur in nature are all the ideas perceived by God which Berkeley says are archetypes existing external to each person's mind. But how are these ideas known? In the *Essay* Berkeley assumes that objects in the external world can affect our senses. He thus speaks of the 'ideas intromitted by each sense',⁵⁶ of objects being able to hurt or benefit our bodies,⁵⁷ and gives a long explanation, already referred to, of why the moon appears larger at the horizon than it does at the meridian, depending on the rays of light reaching a person's eyes. Berkeley thus is taking the position of his opponents and assuming there are material things which can act upon men's bodies. This disappears, however, in his immaterialism. Things are

⁵⁴ D3. vol. II, p. 241.

⁵⁶ N.T.V. 46.

⁵⁵ See Bracken, op. cit., p. 50.

⁵⁷ N.T.V. 59.

only collections of ideas. But it is an essential part of Berkeley's philosophy that 'figure, motion, and other qualities, ... are in truth no more than mere ideas and cannot be cause of any thing'.⁵⁸ Therefore, rays of light, vapours, etc., being all ideas, cannot have any effect on each other in the way he describes and so cannot give rise to the ideas he says they do. Berkeley is open to the same charge he makes against the materialist, that is, 'though we give the materialists their external bodies, they ... are never the nearer knowing how our ideas are produced, since they own themselves unable to comprehend in what manner body can act upon spirit, or how it is possible it should imprint any idea in the mind'.⁵⁹ But this can just as correctly be applied to Berkeley as well, for give him things composed of ideas he cannot explain how ideas are produced in the mind. Again Berkeley is his own best critic. When Hylas tries to explain the origin of ideas by reference to a brain Philonous asks, 'when ... you say, all ideas are occasioned by impressions in the brain, do you conceive this brain or no? If you do, then you talk of ideas imprinted in an idea, causing the same idea, which is absurd. If you do not conceive it, you talk unintelligibly'.⁶⁰ The same point can be applied to the senses. How do we know we have senses? By ideas imprinted on ideas? If all ideas are passive one cannot speak of imprinting ideas on the senses, which are only ideas. The materialist cannot explain how matter acts on mind, Berkeley cannot explain how passive ideas act on the passive ideas of the senses or on the mind. This is as much a point of importance for him as them, since once he has allowed ideas an independent existence he must explain how they become part of men's consciousness. If, therefore, Berkeley's immaterialist view of things as collections of ideas is substituted for his reference to things in the *Essay*, then his philosophy ends in scepticism because he cannot explain knowledge of things.

However, when Berkeley comes to state his immaterialism in the *Principles* and *Dialogues* he does not say things act upon our senses, but that God does.⁶¹ But what is God's rôle here? Jessop, in commenting on Berkeley's criticism of occasionalism, says that 'Berkeley was an occasionalist so far as he denied corporeal causality, but for him the corporeal is the sensory and therefore a known occasion'.⁶² Here Jessop assumes that the ideas God perceives and those He produces in men are the same. But this cannot be. Ideas are by their very nature private to the person having them. God's ideas are *His* ideas

⁵⁸ P. 50.

⁵⁹ P. 19; also P. 50; D2. vol. II, p. 210.

⁶⁰ D2. vol. II, p. 209.

⁶¹ P. 29, 33, 57, 90; D3. vol. II, p. 210.

⁶² Works, vol. II, p. 71, footnote 1.

and men's ideas are *their* ideas so that they cannot possibly know the ideas of which God is aware. However, in addition to this difficulty there are all the problems that were discussed in the linguistic interpretation of Berkeley's philosophy with respect to God's action on men's senses. There are also the problems which were discussed concerning how God perceives objects and the type of object perceived as well as the remaining problem to be considered as to the function of nature in the limerick interpretation. The result is that if Berkeley wants to hold that objects affect our senses he cannot do so since they are composed of passive ideas, if he wants to say God affects our senses by imprinting ideas on them (which he says he does not want to hold) he cannot explain how God's activity on passive ideas can produce any knowledge, and if he wants to say God affects men's minds directly he cannot explain why men have senses or the ideas of the various senses.

Of what use is the world of ideas? Berkeley's answer is that nature is created by God so that by means of a few rules He can do a great number of things just as the letters in an alphabet allow a large number of words to be formed. It is the rules of Nature that allow men to know what to expect in the world and how to behave for the well-being and preservation of their bodies.⁶³ But of what use is nature to man even if it does behave in a regular fashion? As a collection of ideas nature is inactive, it cannot hurt men, nor can it benefit them. What nourishment inactive ideas can give to a body which is also only a system of inactive ideas is hard to understand. Berkeley has said that men wear ideas and eat ideas, etc., but these are not the ideas of nature which God perceives, but are, if anything, those He produces in men. If nature is to mean anything to man it can only mean the system of ideas which God produces in him, not the system of ideas perceived by God. There is therefore no use for a created nature in Berkeley's system. He is in fact subject to the same criticism he makes of occasionalism and of materialism. In criticizing the view that matter may be known to God to whom it is the occasion of exciting ideas in our minds Berkeley says 'but whether there are not certain ideas, of I know not what sort, in the mind of God, which are so many marks or notes that direct him how to produce sensations in our minds, in a constant and regular method; much after the same manner as a musician is directed by the notes of music to produce ... a *tune*; though they who hear the music do not perceive the notes, and may be entirely ignorant of them. But this notion of matter seems too extravagant to deserve a confutation'.⁶⁴ Berkeley's nature as perceived by God is in the very same position, so that it is utterly

⁶³ P. 61-5; N.T.V. 147.

⁶⁴ P. 71; also P. 53, 61, 68.

useless to man and to God. Men cannot know nature on Berkeley's principles any more than they can on those of his opponents. Both philosophies end in scepticism.

The result of this examination of the relation between the *Essay* and Berkeley's immaterialism is that no matter whether one takes the strict, the linguistic, or the limerick interpretation of his immaterialism, the two cannot be reconciled and in both cases his philosophy ends in scepticism. The main reason for this is perhaps his desire 'to think with the learned, and speak with the vulgar'.⁶⁵ When he speaks with the vulgar he is writing his *Essay* and assuming that there are physical objects which can hurt our bodies. He also believes in the creation of individual things in the world that persist when no finite mind is perceiving them. When he talks with the learned he holds that 'to be is to be perceived', and that things are only collections of ideas. His desire is to try to reconcile these two and it is his attempt to do this which creates the difficulties which have been discussed.

(The German translation of this article will appear in the following issue of the German edition of 'Ratio'.)

⁶⁵ P. 51.

LICHTENBERG AND OUR TIME

NOTES ON AN AMERICAN SELECTION OF LICHTENBERG'S WRITINGS¹

BY HEINRICH KAESTNER

To translate into English a selection of the writings and letters of Georg Christoph Lichtenberg (1742-99) is a worthy undertaking. A particularly valuable feature of this book is the introduction, an essay in which the life, influence and ideas of this uncommon man are related with much sympathy. Lichtenberg is an unusual phenomenon, being in the strict sense of the word neither a man of letters nor a philosopher. For the sake of giving him some sort of label, Lichtenberg has often been dubbed the German satirist of the Enlightenment. But this is not doing him justice. Satire is only one side of his character; while making a name for him, it actually obscured his real importance. — The present American selection also gives undue prominence to this aspect of Lichtenberg's work.

Lichtenberg was more than an ingenious, nimble-witted author: he was the intellectual conscience of his time; he retained his freedom of thought undeterred by prevailing doctrines. Lichtenberg shared this attitude of independence towards the spirit of the age with other great minds of his century. Without it Kant would have remained a speculative metaphysicist, Schiller a romantic idealist, and Goethe a sensitive poet. These traits which Kant, Schiller and Goethe overcame predominated at the time. Lichtenberg's importance lies less in the creation of a self-contained life work than in the manner of his thinking. One could regard him as the genius of unbiasedness. He subscribed to no philosophical system, but did not create one either. He united many philosophical tendencies while working out none of them consistently. As the introduction to *The Lichtenberg Reader* points out, in his philosophical observations Lichtenberg established points of departure for present-day philosophical and scientific trends. Thus he anticipated pragmatism, positivism, linguistics, psychoanalysis (in his ideas on the significance of the unconscious), and philosophical problems of the quantum theory (in his views on the theory of causality). It is possible to find many more such points of departure in his writings. However, it is not this which

¹ *The Lichtenberg Reader*. Selected Writings of Georg Christoph Lichtenberg. Translated, edited and introduced by Franz H. Mautner and Henry Hatfield. Beacon Press, Beacon Hill, Boston.

is decisive for Lichtenberg's importance in our times; what is decisive is his ability to think without bias, unimpeded by any cramping philosophical trend.

The editors of this American selection assert that Lichtenberg was admired by the great minds of his day, by Goethe and Kant among others. But this assertion stands in need of correction. Goethe in fact refers to Lichtenberg disparagingly. Thus in writing to Schiller on August 24th, 1797, of his intention to describe 200 satirical French copper-plates, Goethe, alluding to Lichtenberg's comments on Hogarth's engravings, says he could not, and would not 'Lichtenbergize'. And on learning from Goethe that the results of his investigations into optics had not been mentioned by Lichtenberg in the revised edition of Erxleben's *Theoretical Physics*, Schiller replies: 'Your displeasure at the Stolbergs, Lichtenbergs, and their like has also imparted itself to me, and I'll be most gratified if you can land them one in return.' It is true that Kant, in a letter to C. F. Stäudlin, which he wrote after receiving the *Collection and Description of Hogarth's Engravings* edited by Lichtenberg, mentioned Lichtenberg with approval. Of admiration, however, there can be no question; otherwise Kant would have mentioned Lichtenberg at least once in his writings. It was not until the nineteenth century that he was admired by independent thinkers; above all by Schopenhauer, who refers to Lichtenberg in important passages of his works, for instance in his reflections on the basic idealist conception and on death. Nietzsche says of Lichtenberg's aphorisms that they deserve, like few examples of German prose, to be read over and over again. Hebbel preferred being forgotten with Lichtenberg to becoming immortal with Jean Paul.

In the introduction to *The Lichtenberg Reader* Lichtenberg's criticism of Lavater's *Physiognomy* is treated in detail. Unfortunately, however, neither the polemical article 'On Physiognomy contra the Physiognomists', which appeared in 1778 in the *Göttinger Almanach* being intended as an introduction to the long essay 'On Physiognomy', nor the latter essay itself has been included in the translated texts. This is regrettable as this essay occupies a central position in Lichtenberg's works, and it also established his reputation as an author. It would have been better to dispense with the translation of the letters, which anyhow provide only an incomplete picture of Lichtenberg the correspondent: of the 848 letters which have been preserved only 27 were selected. One could also wish that more aphorisms had been considered since these illuminate Lichtenberg's true importance. Above all one misses his longer philosophical observations, those on Kant among others, which contribute more to

the understanding of this philosopher than many long commentaries.

The essay 'On Physiognomy' shows most clearly Lichtenberg's importance as an unprejudiced thinker. Apart from the critical examination of Lavater's writings, this essay contains remarks of abiding significance. A few quotations in instance of this. 'Beware of the stigmatized' is a term of abuse to which the stigmatized have at all times been exposed by a certain class of the *non-stigmatized* in the world. Thus the stigmatized could say with greater justification "Beware of the *non-stigmatized*". "In a fair body there dwells a fair soul" is another such saying. Yet another is "Frontis nulla fides". Proverbs live in eternal strife, as do all rules yielded not by critical thought but by a mood.' The Latin tag 'Mens sana in corpore sano', another dangerous generalization, might also be mentioned. Lichtenberg himself and many other men of genius gainsay it. There is also a noteworthy passage on the racial problem. 'I will say just a little for the negro whose profile has been marked out as the prototype of stupidity and obstinacy and, so to speak, as asymptote to the European line of stupidity and malice. Hardly surprising when slaves, sailors and drummers, who formerly were slaves, are set over against a candidate *en belles lettres*. If, while young, they come into good hands and are respected as human beings, they will become human beings; as booksellers in London I have heard them chatting, even coherently, about book titles and more indeed is hardly demanded of a *bel-esprit* in Germany. They are extremely artful, at the same time resolute and up to all sorts of wiles and should not, therefore, since trials with them have been as yet so few, be at all despised by people who for ever talk about disposition without aim and force without direction. They are not unfaithful to their West-Indian slave-drivers, for they have not pledged their faith to these slave-drivers. The white, thin-lipped sugar merchant is the infamous one in the trade.' It has taken almost two centuries for this view of the negro to become rather more general.

The following remark by Lichtenberg about the understanding of Shakespeare's dramas holds good for the understanding of any intellectual or artistic creation. 'A person might bring so few of the above requisites to the reading of Shakespeare or have so little desire to awake within himself, that he would in the end understand nothing but Shakespeare's lewd jests, his curses, and some of his most extravagant metaphors. That, however, will to the end of time be the lot of all great minds who write about mankind with deep insight. Such works are mirrors; when an ape peers into one, he will not see an apostle.' How rare are human beings today who are intent

on 'awaking within themselves' by the pursuit of philosophy, literature and art. However, that is not to be understood in the sense of Jaspers, whose method of existence-illumination leads, if anything, to an existence-obscurization. By 'awaking within oneself' Lichtenberg understood nothing other than the spiritual coming-of-age characterized by thinking for oneself. In this connection we may quote an aphorism of Schopenhauer on thinking for oneself in which Lichtenberg is mentioned. 'Only that has true value, however, which one has in the first place thought out only *for oneself*. One can indeed divide thinkers into those who think *for themselves* in the first place and those who forthwith think *for others*. The former are the genuine thinkers, the *self-thinkers*, in a twofold sense of the word: they are the real *philosophers*. For they alone are in earnest about the matter. So too the delight and happiness of their existence consists in thinking. The others are mere *sophists*: they wish to make a show, and seek their happiness in what they hope thus to attain from others: herein lies their earnestness. To which of the two classes a man belongs can soon be perceived from his entire manner and style. *Lichtenberg* is an instance of the first kind; *Herder* belongs to the second.' Lichtenberg himself says about thinking for oneself: 'Thinking for oneself is often advocated only so as to enable one to distinguish the errors of others in the search for truth. It is a gain, but is that all? How much needless reading is thus spared us! Is then reading and study the same? Someone claimed with good reason that printing had indeed diffused learning further but diminished it in content. Much reading is inimical to thinking. The greatest thinkers whom I have encountered among the scholars were those who had read the least. — If one teaches people *how* they should think, and not for ever *what* they should think, this abuse will also be precluded. It is a manner of initiation into the mysteries of humankind. Whoever lights upon a queer proposition in his own thinking is likely to abandon it again if it be false. On the other hand a queer proposition taught by a man of repute may mislead thousands who do not scrutinize it. One cannot be too cautious in promulgating personal opinions which bear upon life and felicity; nor, on the other hand, too assiduous in inculcating common sense and doubt. Bolingbroke said very aptly: "Every man's reason is every man's oracle". — If these words, so unlike Hegel's verdict against thinking for oneself, had been heeded, many errors in the history of Western thought might have been avoided, and false philosophical views would have been recognized as such. Instead we have a dangerous Babylonian confusion of tongues in all fields of culture. Particularly disastrous have been the effects of mingling artistic, and above all philosophic, truth with that of the

individual sciences; it has led to views on the world and on man that can become a peril to our culture if they are not banished by a fundamental rectification of concepts. Lichtenberg has something to say on this too: 'Enlightenment in all social groups really consists in the right concepts of our essential needs.'

(Translated from the German)

REVIEWS

F. A. HAYEK: *Missbrauch und Verfall der Vernunft*. Fritz Knapp, Frankfurt am Main, 1959.

Missbrauch und Verfall der Vernunft (The Abuse and Decline of Reason) is the German translation of F. A. Hayek's *The Counter-Revolution of Science*.¹ Aware that men can misuse their reason, one is anxious to learn how and with what consequences they do this in a world full of tensions.

The author assures readers that they need not read Part One, 'Scientism and the Study of Society', if the subject appears too difficult. Part Two, 'The Counter-Revolution of Science', is a fascinating account of the history of ideas in the nineteenth century; it merely assumes a notion of Hayek's central concept, an understanding of what 'scientism' is. At the conclusion of the book, Comte and Hegel appear not as positivist and idealist opposites, but as disciples of Descartes, what they have in common culminating in the statement: 'The central aim of all study of society must be to construct a universal history of all mankind, understood as the scheme of the necessary development of humanity according to recognizable laws' (196). For Hayek it 'makes little difference' that Comte should seek these laws — which are laws of development of the human spirit — in the form of 'natural laws', while Hegel developed them as metaphysical principles. To speak with John Stuart Mill, whom Hayek quotes, both ideas lead in social reality to 'liberticide'.

The social sciences, according to Hayek, have borne for 120 years or so the impress of the great successes achieved by the physical and biological disciplines. Thus impressed, they have succumbed to a blindly prejudiced methodology and a tyrannical scientific approach. Social scientists thus deluded fancied they knew what was the appropriate method for investigating their subject matter even before having scrutinized the latter; theirs was not a scientific, but a 'scientistic' point of view.

The author launches his discussion of epistemological and methodological issues by depicting the struggle of natural science against impeding notions and concepts. This struggle is analogous to that waged by Hayek in the social sciences against the scientistic prejudice, which continues to 'confuse and discredit' (14) the work of these disciplines. He contrasts the 'objective character' of the natural sciences with the 'subjective character' of the social sciences, the true method of which is the individualist or 'compositive' one. The opposed scientistic method is analysed in the forms of 'objectivism', 'collectivism' and 'historicism'.

In the next chapter, Hayek gives a theoretical foundation of his liberal postulate by delineating, on the basis of a qualified teleological view of society, the significance of unconscious social processes. These are processes in which 'the individual plays a part which he can never fully understand' (117), and the results of which are beyond the reach of

¹ Quotations in this article are taken from the American original: *The Counter-revolution of Science*, Free Press, Glencoe (Ill.), except for the one referred to in footnote 2.

individual understanding 'precisely because they result from the combination of knowledge more extensive than a single mind can master' (84). Adam Smith, Carl Menger and others are called on as principal witnesses, whereas L. T. Hobhouse, Joseph Needham and Karl Mannheim are cited as examples of the super-rationalist presumption of man, as proponents of the scientific ideal of consciously controlling social processes, an ideal that is at its most palpable in the economic sector, where manifested in the planner, whose supreme ambition is 'to turn the world round him into an enormous machine' (102), it destroys liberty and reduces and impedes prosperity.

The 'source of the scientific hybris' is l'École Polytechnique. If it 'is true, therefore, that the new attitude of man towards social affairs in the nineteenth century is due to the new mental habits acquired in the intellectual and material conquest of nature, we should expect it to appear where modern science celebrated its greatest triumphs' ... 'at Paris where almost all the great scientists of the age congregated' (105).

A characteristic of Hayek's history of ideas is the intermingling of biographical details, which are partly of an intimate nature and are not lacking in humour. There is, on the other hand, an unmistakable tendency for those ideas which were systematically opposed in Part One to be represented in Part Two – mainly in the shape of Saint-Simon – as products of dubious, even morally doubtful, characters. Whereas such scientists as d'Alembert, Turgot, Lagrange, or Condorcet 'showed scarcely any trace yet of that illegitimate extension to the phenomena of society of scientific methods of thought which later became so characteristic of that School – excepting perhaps certain ideas of Turgot about the philosophy of history and still more so some of Condorcet's last suggestions' (107) – Saint-Simon, Auguste Comte, Prosper Enfantin, Victor Considérant 'and some hundreds of later Saint-Simonians and Fourierists ... followed by a succession of social reformers throughout the century down to Georges Sorel' (113) went the way of the 'scientific hybris'.

Hayek's language is polished, his illustrations are striking, and the 228 pages of text and 617 notes show evidence of wide learning.

The author makes numerous weighty statements, on some of which we shall comment while others will provide their own answer in the course of discussion. It should not be held against Hayek that his arguments are not always sufficiently detailed. In the first place, the book is a fragment, comprising essays and lectures: 'republished studies ... , written as part of a large work which, should I ever complete it, is to cover the history of the abuse and decline of reason in modern times'.² In the second place, 'the arguments of such a fragment are naturally determined ... by the wider framework in which they belong';³ this means in fact that the reader is referred to the author's other publications, some of which are in the nature of a 'provisional popular account'.⁴ *The Constitution of Liberty* (London, 1960) is Hayek's most recent work.

² *Missbrauch und Verfall der Vernunft*, p. 7.

³ *Ibid.*, p. 8.

⁴ *Ibid.*, p. 9.

Hayek speaks of theoretical social science, or social science in the true sense, meaning by this all endeavours to construct models reproducing the structures of relationships between human individuals. Statistics do not form part of social science in the true sense, for 'statistics deliberately and systematically disregarded the relationships between the individual elements' (61). In statistics, he holds, the 'subjective' element, which characterizes the concepts of the social sciences, is lost.

With regard to Hayek's strictures concerning a 'slavish imitation' of the language of natural science, it must be said that the language of mathematics is by no means confined to natural science alone. There is a 'slavish imitation' in the social sciences only when mathematics is not adequately applied, and only when this is actually the case can we agree with Hayek in speaking of an impediment to progress in social science.

Confronting the constitutive theories of mathematics is certainly a difficult task. It is frequently attempted to avoid this – occasionally in the natural sciences too, though more so formerly – by citing higher philosophical concepts, while mathematically trained minds often tend to an explanation of phenomena according to 'wild' hypotheses in order to be able to treat them with quantitative exactness. Frequently, adequate mathematical methods have not yet been devised or sufficiently developed. It may suffice to point out that the calculus of matrices was already at the disposal of economics as an auxiliary, while the theory of linear inequations was largely stimulated by economic problems. Although linear inequations appeared as early as 1910 in H. Minkowski's book on the geometry of numbers, they first drew the interest of mathematicians with the publication of J. v. Neumann's work on the theory of games.

Hayek also asserts a fundamental distinction between the concepts of the social and the physical sciences. This distinction, he holds, consists in the 'objective' character of the one group of concepts and the 'subjective' character of the other. The concepts of natural science can be utilized only when things in them are apprehended as similar not because they appear similar, but because they behave similarly with respect to other things; the concepts of natural science are 'objective', having resulted from reclassifications. In contrast, the concepts of social science rest on the conclusion by analogy that things which appear similar to us also appear similar to others. 'So far as human actions are concerned the things are what the acting people think they are' (27). This distinction forms the basis of a thoroughgoing condemnation of what Hayek terms the 'objectivism' of the 'scientific method', i.e. all endeavours in the study of man and society to dispense with knowledge of the human mind. He means in particular Comte's repudiation of introspection, all 'objective psychology', J. B. Watson's behaviourism and the physicalism of O. Neurath.

Hayek's distinctions between the concepts of the natural and social sciences are convincing as long as the reference is to the distinction between acting human beings and lifeless things, that is in so far as the contents are concerned. For the rest, however, the relevancy of the concepts must in both cases stand the test of experience.

This test presents special difficulties in the social sciences, which is, however, not of fundamental importance. In both natural and social sciences theories become obsolete; that a greater adaptability must be evinced in the social sciences makes no fundamental difference either.

It is the methodology of the *homo agens*⁵ that Hayek has mainly in view. In his opinion it is merely possible for the social sciences to indicate the forms to which all activity is subjected in virtue of the structure of the human mind. The father of the *homo agens*, Ludwig von Mises, says: 'There is no means of creating an *a posteriori* theory ... of social processes' (*Human Action*, p. 31). Only the views of men are of empirical interest, according to Hayek, and 'it is only by the patient and systematic following up of the implications of many people holding certain views that we can understand, and often even only learn to see, the unintended and often uncomprehended results of the separate and yet interrelated actions of men in society' (34). To proceed in this manner is, he holds, to make use of the 'compositive' method.

The social sciences deal, in Hayek's view, not 'with "given" wholes', but with 'known elements' from which we construct models. Here the author is opposing the treatment of social phenomena 'as if they were objects directly perceived by us as wholes' (53). The tendency to proceed thus is again declared to be blind imitation of the natural sciences. The natural sciences first search in the relatively complex phenomena 'that are immediately given to observation' (53) for empirical regularities, and only then do they proceed to explain them as combinations of other elements.

Hayek equates the use of this method (from 'wholes' to 'elements') in the social sciences with the error of supposing it is facts that the provisionally theorizing popular mind constructs when talking about a 'nation' or 'capitalism'. What is meant here is the scientific sin of conceptual realism, the 'fallacy of misplaced concreteness' (A. N. Whitehead). This critique could be given unqualified support if the false conclusion of a methodological monism were not drawn from it, and if it were not used to claim exclusive validity for the 'individualistic and "compositive" method', i.e. that certainly very important method which proceeds from knowledge of the inside of social complexes, namely from the attitude of the individuals which form the elements of their structure. This monism is all the more dubious because it not only represents a form of scientific scepticism, but also greatly exposes one to those dangers Schumpeter refers to when he asserts, 'Whenever we attempt to interpret human behaviour, we are running the risk ... of misunderstanding, not only when we simply equate their [other people's] states of mind with our own, but even when we try our utmost to project ourselves into their mentality'.⁶

Hayek's chapter on 'collectivism' is aimed directly at Auguste Comte,

⁵ Ludwig von Mises, *Human Action*, New Haven, Yale University Press, 4th ed. 1950. Cf. in particular: *The Revolt against Reason*, *ibid.*, p. 72 ff.

⁶ *History of Economic Analysis*, New York, Oxford University Press, 2nd ed. 1955, pp. 34-5.

and it without doubt hits the mark where Comte is actually treating and revering mankind as a 'social being', as a kind of 'super-personality'. However, we should have to agree with Comte were he to answer Hayek with the charge of propounding an 'absolute and indefinite logical dogma'; for in reality one can 'recognize no other logical necessity truly common to all possible forms of research than the manifest obligation always to progress from the known to the unknown, an obligation which would certainly be difficult to evade and which, properly speaking, establishes no kind of lasting precedence'.⁷ In economics, for instance, the way from the 'elements' to the 'wholes' is largely blocked by the unsolved problem of aggregation⁸ so that in certain cases we must proceed from the 'wholes' and remain with the 'wholes'. It is of course possible to exclude such macro-theories from 'theoretical social science' by definition. Nevertheless, their factual relevance is still beyond any doubt, i.e. — speaking concretely — the 'actions' (in inverted commas!) of groups of a sufficiently definite kind are theoretically relevant. The rule as a prescription for human volitional activity can be erected on a macro-basis as well as on a micro-basis — though it ought to be stressed that the single instance must not be treated under rules applying to the whole if it is the single instance that is significant and if this instance admits of closer investigation.

Both Hayek and Comte transgress this principle by claiming exclusiveness for their respective 'compositive' and 'historical' methods. Yet Comte's position gives the wider view of the world of social facts and possesses an element of control, namely the comparison with the facts of anthropology, 'which always provide a control for the direct statements of sociological investigation, and frequently have even to correct and complete these' (Fi, III, 714).

The possibility of error was given particular emphasis by Comte, who was aware 'that in all fields the successive theories are ever closer approximations to a reality of which apprehensions are never incontrovertible ...' (Fi, III, 618).

In his discussion of the 'historicism' of the 'scientistic method', Hayek too emphasizes that all events and situations of this world — if one takes account of a sufficient number of aspects — are unique and that this uniqueness is not peculiar to history. He knows that the difference between generic principles and the explanation of concrete phenomena cannot provide a foundation for the distinction between natural and social sciences. 'In both fields we need generalizations in order to explain concrete and unique events' (67). We need definite questions for a historical event to become an object of thought, and with each new question it becomes a different object of thought; an historical event as such is not an object of thought.

From this position, Hayek argues convincingly against the indefinite

⁷ *Soziologie* von Auguste Comte, translated into German by V. Dorn, Jena, G. Fischer 1923, vol. I, p. 260. Quoted in the following as (Fi, vol., p.).

⁸ There are unresolved difficulties in arguing from the individual behaviour of economic units to the 'behaviour' of groups formed purposively (and vice versa).

thesis of the 'relativity of historical knowledge', continuing, however, to permit only one kind of question for social science, questions of the 'compositive' method. All 'wholes', such as 'trade', 'army', 'science', so he argues, are not single observable things, but systems of relations; they are theoretical generalizations, which are not identical with the concrete 'wholes' studied by the historian, but merely serve him as aids to interpretation.⁹ Scientific history, historicism, rests, he maintains on the naive belief that the observation of 'wholes' studied by history can reveal laws of development, successive 'stages', 'phases', 'systems', or 'styles'.

This argument does not provide the intended refutation, however; for there is no *a priori* excluding of the possibility that certain social structures repeat themselves uniformly or, alternatively, that they repeat themselves with uniformly continuing changes. Neither the characterization of human history as 'the result of the interaction of innumerable human minds' (74) nor the various formulations of scientific humility can alter this. We may term Comte's inductions incomplete or erroneous, and his interpolations premature or falsified, we may reject assertions about the 'sense of history', and repudiate the confusion of religious with sociological problems, yet we cannot overcome historicism with the dogma that in history there are no structures that change in accordance with laws.

Comte's law of three stages is an example of a bold conjecture; it results, however, from indisputable historical facts, from unmistakable repetitions of chains of events. Comte himself is sometimes cautious in his formulations: 'I believe that this history can be divided into three great epochs or states of culture ...'¹⁰ He is convinced that 'in accordance with the fundamental laws of human nature', ... 'the evolution of the species and that of the individual terminate, after sufficient prior exercise of our entire faculties, in reason being spontaneously accorded an ever more definite precedence over the imagination ...' (Fi, I, 502).

Popper holds that even if one follows Comte's premises and deductions, the question of a diminution of progress – by overwhelming natural events, for instance – still remains open. Moreover, Comte's premises consider only one aspect of human nature. One could as well attribute historical developments to human forgetfulness or torpidity. For Popper it is an astonishingly naive theory ...¹¹

The reference to overwhelming natural events is acceptable as an argument of scientific 'unbelief' against prophetic statements, i.e. statements not based on induction, but claiming direct perception of the future; but it is not admissible as an argument against the scientific statements which Comte endeavoured to make. Comte is aware that 'all external disturbances which would touch upon the individual life of men ... could

⁹ Hayek himself makes use of concrete 'wholes' – and with justification, we hold – when in *The Constitution of Liberty* he formulates the following law: 'Civilization as we know it is inseparable from urban life. Almost all that distinguishes civilized from primitive society is intimately connected with the large agglomerations of population ...' (p. 340).

¹⁰ Auguste Comte, *Entwurf der wissenschaftlichen Arbeiten, welche für eine Reorganisation der Gesellschaft erforderlich sind*. Uebersetzt von W. Oswald, Leipzig, 1914, p. 143.

¹¹ K. R. Popper. *The Poverty of Historicism*, London, 1957, pp. 153-4.

not fail ... to change subsequently his social existence too' (Fi, I, 361). That Comte 'considers' only one aspect of human nature is due to his regarding this aspect for many reasons as ultimately decisive. Admittedly, one must agree with Popper when the great difference in certainty makes him distinguish between physical law and historical trend. However, one is bound to have increasing expectations when the trend remains unvaried.

Jakob Friedrich Fries wrote the following sentences bearing directly on our problem, a fact which deserves to be emphasized in the present context and in this journal: 'The main stages in the development of the mind in human life are ... sensual stimulation of life in the state of crudeness or savagery ... the rule of habit ... the rule of understanding ... Among the peoples, the lowest stage is represented by the communal life of savages ... The second form in the life of peoples is that of hardened convention under the sole dominion of custom ...' The latter 'stage of indurated development' has been 'in the recent period of the earth's history surpassed by few races only'¹² With such an approach, it is not asserted that an historical development takes place under all circumstances, but that a people, if possessed of sufficient vitality and not exposed to unusual new circumstances, will enter on a course of evolution which in a definite manner proceeds from human nature. For minds such as Fries, Comte, and Mill, to overcome the 'dominion of custom' signifies entry into the world of liberty, into the 'manhood of reason' (Comte).

Hayek, too, upholds the ethical postulate of the liberty of the individual. It is a great merit of his to have displayed the dangerous aberrations involved in the notion of historical-evolutionary inevitability and in simplifying mechanistic and biologicistic approaches: the dangers of ethical relativism, of degrading man to an 'automaton' in the 'inevitable' process of change in collective entities, and of doctrinal fanaticism inspired by philosophy of history.

The author draws parallels to ponder upon. In exactly the same manner as Prussian socialism, Comte, he writes, demands the substitution of the concept of duties for that of rights, calls for the conception of property as a social function, of private persons as state functionaries, maintains there is a special disposition to obey or to command, elevates society to a collective individual, and demotes the individual to a mere abstraction. Comte confirms this in asserting, '... man' is 'in the real sense but a pure abstraction; there is, especially in the intellectual and moral order, nothing real besides mankind' (Fi, III, 584). And the true and ultimate philosophy is 'sociological philosophy' (Fi, III, 619).

One is in fact reminded of fascist demagoguery when Comte criticizes 'the direct initiative accorded by the constitution to every member of the legislative organs', and when he censures the 'usual futile controversies' of a corporation which rob the 'focus of action' of 'any actual stability' (Fi, III, 311-12). Comte is even more alarming when, in honouring

¹² J. F. Fries, *Handbuch der psychischen Anthropologie*, 2nd vol. Jena, 1839, pp. 231-3.

humanity and eminent individuals, he states with finality and with satisfaction that 'religion is sufficiently extinct' (Fi, I, 496). He is indeed aware 'of the need for eternity always inseparable from our nature', but wishes to dissociate it from a 'chimeric hope' (Fi, III, 743-4). Denying to this need the idea of the living originator of all life, he is compelled to turn to a substitute, in his case 'humanity', of whose 'eternal shaping' (Fi, III, 418) he dreams. The parallelism with Marxist dreams of the future is striking.

However, Comte's atheism was largely kindled by the knowledge that the 'religious morality of concern in personal salvation' – from a definite standpoint, it should be added – simply amounts to a modification in the 'definition of the fundamental egoism ... without being able to rise even to a conception of a morality not exclusively founded on some kind of personal expediency' (Fi, II, 529). Comte's endeavour 'finally to render morality completely independent of all religious belief' (Fi, III, XVI) springs from a concern for the defence of human dignity against the presumptions of politically powerful theological speculation.¹³

When Comte wrote his *Cours*, he did not imagine that he had provided the 'true constitution' of every future society and in particular of the 'spiritual authority'. He found all 'detailed discussion of the forms of their later constitution ... as puerile as it is uncertain ...' (Fi, III, 423). From this point of view, his practical sociology, his *Système*, represents a major inconsistency. The question whether Comte was mentally unbalanced in the second phase is a matter of dispute. John Stuart Mill regarded the *Système* as the work of a man who through speculations was in danger of underestimating the value of liberty and individuality. He equates Comte's organized moral authority with spiritual despotism. Furthermore, the question whether the postulates of the *Système* follow logically from the theories and principles of the *Cours*, from Comte's 'objectivism', 'collectivism' and 'historicism' must, in our view, be answered negatively. Comte's analyses, his anthropological and ethical presuppositions are largely vague; the basic position is inconsistent, for it combines ideas of evolution and progress into an obscure synthesis while proceeding from a philosophy of fact. On the one hand, Comte is a passionate advocate of spiritual freedom, 'as when he turns against the 'political maxims' which 'entirely forbid the spoken and printed word owing to the apparent misuses to which it can be put ...' (Fi, III, 363), or as when he describes the social influence of his 'blessed corporation' as resting solely on the 'voluntary agreement of minds to the ... new doctrines'. On the other hand, however, the establishment of an organized 'spiritual authority' means that sincere belief in the correctness of a divergent view will be subjected to what is, at least, unreasonable moral coercion, which may all too easily assume the character of total suppression. To this objection Comte would reply that

¹³ John Stuart Mill, *Auguste Comte and Positivism*, Trubner, 1865 (reprinted from the Westminster Review), p. 135: 'The power which may be acquired over the mind by the idea of the general interest of the human race, both as a source of emotion and as a motive to conduct, many have perceived; but we know not if anyone, before M. Comte, realized so fully as he has done, all the majesty of which that idea is susceptible.'

the 'spiritual authority' is an 'inevitable authority', (Fi, III, 313) existing at all times and in every society, and that the sole problem is to prevent the exercise of 'spiritual authority' by unauthorized persons. This counter-objection is worth frequent pondering.

Comte remains worthy of consideration. He covered the entire field of sociology for the first time, and made a large number of penetrating individual observations, all bearing on significant issues. It is still rewarding to study what he wrote on such topics as the freedom to express one's opinion, on the sovereignty of the people, the sociology of educational establishments, the 'anarchy of intellectuals', on the social significance of trust, the power of capital, the rule of journalism, on specialization, liberty and authority, and on the sociological foundations of the Catholic Church – even if, or just because, one arrives at different practical conclusions.

Hayek represents Comte – and still more so Saint-Simon and his followers – as being mainly responsible for sociological 'scientism' with its planning hybris. He confronts this hybris with the realization of the importance of unconscious social processes. However, Hayek mentions, though only in passing, that Comte, too, was aware of their importance. 'A wonderful spectacle' is what Comte termed the 'regular and continuous convergence of a countless number of individuals, every one of whom possesses a quite definite and, to some extent, independent existence, yet all of whom, despite the greater or lesser incompatibility of talent, and more especially of character, are constantly disposed to contribute by a host of diverse means to one and the same general evolution, without ordinarily having come to an understanding among themselves, and indeed usually without this being known to the majority, who suppose they are obeying personal impulses' (Fi, I, 427). From this position, which agrees fundamentally with Hayek's, Comte proceeds to the central thesis of his life's work, his bold extrapolation.

It is of utmost importance to bear in mind that these unconscious processes do not necessarily progress according to instrumental and ethical predominance, and that in these processes the individual does not necessarily – to speak with Hayek – 'assist in the creation of something greater than he or any other single mind can ever plan for' (102). To assert that 'a certain necessary order always establishes itself ...' is not to maintain, as Comte correctly recognizes, that 'this order ... does not offer serious and numerous disadvantages, which ... up to a certain point can be modified' (Fi, I, 249).

The instrumental predominance of the free play of forces, as understood by Hayek, is not universally present as far as the economy is concerned. Whether present or not, however, there remains the ethical question, each instance of which must be examined separately. If on the other hand one is convinced in principle of the 'creation of something greater', one finds oneself – the notion is not intended sarcastically – in harmony with the opposed Hegel in so far as the latter declares the Real to be rational by virtue of its reality – the results of history indeed being for Hayek, as a

sympathetic review puts it, the 'emanation of an inter-subjective super-reason which is always infinitely superior to the individual understanding'.¹⁴ When one reflects that macro-decisions also lead to an unknown goal of which only the super-reason is aware, one sees this notion revealed in all its indefiniteness.

Hayek dedicates his book *The Constitution of Liberty* 'to the unknown civilization that is growing in America'. Let it be hoped that the optimism of this dedication turns out to be justified. It will be confirmed, however, only if men are ready and theoretically equipped to make at the moment of crisis the necessary macro-decisions, unpopular though these may be. The past has shown that the 'infinitely superior super-reason' cannot be relied upon. The optimum between liberty and coercion, between individual and collective decisions, is not of fixed magnitude, but is directly dependent on the degree of internal and external pressure to which a society is subjected: a very general and trivial proposition, yet one which is often insufficiently heeded with respect to increasing and to curtailing personal liberty.

R. JUNKER

(Translated from the German)

Hauptströmungen der Gegenwartsphilosophie by Wolfgang Stegmüller.

Alfred Kröner Verlag, Stuttgart, 1960. Pp. XLVIII + 532.

DM 15.—.

Concerning contemporary history Collingwood states that it, 'embarrasses a writer not only because he knows too much, but also because what he knows is too undigested, too unconnected, too atomic. It is only after close and prolonged reflection that we begin to see what was essential, to see why things happened as they did, and to write history instead of newspapers'. Collingwood's judgment is true, *mutatis mutandis*, of histories of modern philosophy. Indeed a writer of a contemporary history of philosophy, apart from the aforementioned myopic predicament, should be on guard against two additional problems: First, he should realize that the traditional categories of philosophical systems are no more informative. To call, for example, Wittgenstein, 'a modern empiricist', or to represent Oxford philosophy as an 'anti-metaphysical school', or even to identify existentialism with irrationalism, is to give a dog a bad name and hang him. For is there not a great difference between the Wittgenstein of the *Tractatus* and the Wittgenstein of *Philosophical Investigations*? Oxford philosophers are anti-metaphysics, only if 'metaphysics' is to be identified with what Kant calls 'dialectical metaphysics', or because, according to Ryle, they deny the possibility of ontologizing, i.e. building arguments with purely conceptual premises and positive existence-conclusions. The same philosophers could be called 'metaphysicians' in another sense of

¹⁴ Edith Eucken-Erdsiek, *Missbrauch und Verfall der Vernunft*, ORDO- Jahrbuch, vol. 11, 1959, Dusseldorf and Munich, p. 337.

that term used by Kant, i.e. 'Metaphysics of Nature', and not as 'empiricists' à la Hume and Mill (see R. M. Hare's article, *Ratio*, vol. II, no. 2).

The second obstacle which stands in the way of our historian is the difficulty of presenting, let alone evaluating, an obscure and unfamiliar speculation in a few pages. No purpose is achieved by mere adumbration of for example Whitehead's unsystematic speculations, or Heidegger's 'systematically misleading expressions', unless one tries to make coherent what is, perhaps intentionally, expressed in a cryptic style.

Now Professor Stegmüller, to some extent, has kept clear of such pitfalls. He is conveniently silent about difficult and unclassifiable figures, such as Whitehead and Wittgenstein. But this might be due to his method of selection. As the title suggests and the author states in his foreword, this book is intended to be a critical introduction to the work of outstanding representatives of the major philosophical schools of the present time. It is primarily addressed to the educated layman and to students who want to become acquainted with the main schools of philosophy, before deciding on specialization.

The book is divided into ten chapters. In the introduction, an attempt is made to connect traditional philosophical problems with modern ones. The author states that change in philosophy, unlike science, is mainly due to change in the philosopher's attitude towards the world which leads him to formulate new questions, and is not due to replacing an inadequate hypothesis by a more comprehensive theory.

This is a significant observation. We know that, while the Greek asked: What makes nature intelligible? Descartes, the founder of modern philosophy, asked: What makes knowledge possible? While modern empiricists are still asking: What makes a judgment significant? One reason why the political theories (and not only the metaphysics) of Plato and Aristotle dramatically differ from those of Locke and Mill, is that they were answers to different sets of questions. Yet, while denying a cumulative character to philosophical theories, one can still recognize 'family resemblances' between the old and the new.

The author himself sees in modern philosophy a series of responses to Kantian problems. To this one may add that some modern philosophers, namely logical empiricists, are also responding to Humian problems, though in a different manner.

Following the introduction, the works of the seven continental philosophers; Brentano, Husserl, Scheler, Heidegger, Jaspers, Hartmann, Reininger and Häberlin, plus the works of logical empiricists under the three traditional fields of metaphysics and ontology, logic and epistemology and ethics are outlined in some detail. In the second edition, a new chapter, 'Analytic Philosophy of the Present', is added to the chapter entitled 'Modern Empiricism'. In these two chapters, which, by the way, constitute one-third of the book, a clean and lucid account of the works of some of the dominant leaders among the logical empiricists and analytic philosophers is given. Each chapter, except the last, is concluded with some critical remarks.

It is a pleasure to read a clear exposition of Anglo-American philosophies, without seeing a trace of an error not uncommonly committed by the continental historians – namely the mistake of confusing the pragmatics with the syntactics and semantics of philosophical theories. In the past it was not unusual for a German or a French historian to belittle empiricism by pointing to the landscape and hills of the British Isles, which supposedly explain the interest of English philosophers in the problem of sense-data, or to refute pragmatism by seeing Wall Street behind it. Such attempts, at best, tell us something about the sociology of knowledge and nothing about either the truths or the validity of any cognative enterprise, and at worst, are the comfort of unreason. Professor Stegmüller not only does not commit such an error, but he is at pains to warn his continental reader that it is possible to appreciate such things as Carnap's semantical system, without seeing a devilish positivistic device which is contrived to destroy metaphysical speculation. A Thomist or a modern ontologist, he says, may see the usefulness of a meta-linguistic system, or may appreciate a set of precise rules designed for inductive logic, or he may even accept the thesis of the contingency of empirical proposition, without having to accept the early positivists' theory of the senselessness of meta-physical statements. In fact, the author, quite rightly points out (in line with Popper) that the verifiability or the falsifiability criterion could be taken, not as a criterion of meaning which foredooms any metaphysical assertion, but only as a demarcation line for distinguishing those parts of our knowledge which are in principle confirmable, from those beliefs which elude verification.

Cognizant of the fact that modern empiricism and analytic philosophy differ to a large degree from other systems in being experimental and piecemeal, rather than speculative and architectonic, the author tries to present, rather than evaluate, a rough sketch of the essential elements of these schools, a project which is by no means simple.

Concerning these chapters I would like to state that though the general layout is good, they suffer from two main defects, which I call the errors of omission and of emphasizing the accidental at the expense of the essential.

I appreciate the author's remark that what he is most afraid of is to get from an over-eager reader a list of authors not referred to in the book. However, if one writes about contemporary analytic philosophy and modern empiricism, one should not be silent ('because of lack of space') about the achievement of Wittgenstein or about Russell's works such as the *Theory of Descriptions*, 'that paradigm of philosophy', or *Postulates of Scientific Inference* (especially when ample space is given to the discussion of mere expositors). Likewise, if one writes about modern analytic ethics one should at least mention G. E. Moore along with Stevenson and Hare. The author correctly states the theses of the autonomy of morals, i.e., that no imperative conclusion can be validly deduced from a set of premises which lacks any imperative content. However, he seems to be unaware that we owe this 'new principle of imperative logic', to Hume's observation on the logical difference between 'is' and 'ought' statements, if not

more recently to G. E. Moore's formulation of the famous naturalistic fallacy. In Hare's thesis that any genuine moral judgment implies universality, the author sees the stamps of Kant's categorical imperative, but not the impact of Hume on both Hare and Stevenson.

As regards the mind-body problem, the author underlines a reductive and simple-minded logical behaviorism of Fiegl. But nothing is said about a much more sophisticated work by Gilbert Ryle (*The Concept of Mind*), in which Wittgenstein's dictum that 'an inner process stands in need of outward criteria', is applied to a host of mind concepts to destroy the Cartesian myth of the 'ghost in the machine'.

Reference is made to the early formulations of the verifiability theory of meaning, but nothing is said about the sense-denotation theory of Frege which precedes it, or about Wittgenstein's language game theory which succeeds it.

Finally, despite the fact that under a special heading Quine's nominalism and Goodman's epistemological theory are outlined, the author is silent about the logical pragmatists of which these two are outstanding leaders in America.

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